

98. Thaumaturgist  
 (A) Producer  
 (B) Dreamer  
 (C) Philosopher  
 (D) Thief  
 (E) Miracle worker
99. Tureen  
 (A) Young lady  
 (B) Irish stew  
 (C) Soup dish  
 (D) Bend  
 (E) Collision

100. Valetudinarian  
 (A) Senile person  
 (B) Fare well speaker  
 (C) Healthy person  
 (D) Servant  
 (E) Agent

## ANSWER KEY

- |       |       |       |       |        |
|-------|-------|-------|-------|--------|
| 1. B  | 21. B | 41. A | 61. C | 81. B  |
| 2. C  | 22. A | 42. D | 62. C | 82. A  |
| 3. A  | 23. A | 43. C | 63. A | 83. A  |
| 4. D  | 24. D | 44. B | 64. B | 84. D  |
| 5. E  | 25. E | 45. A | 65. D | 85. B  |
| 6. C  | 26. A | 46. C | 66. A | 86. E  |
| 7. C  | 27. A | 47. A | 67. A | 87. D  |
| 8. D  | 28. B | 48. E | 68. A | 88. C  |
| 9. D  | 29. A | 49. C | 69. B | 89. E  |
| 10. E | 30. D | 50. A | 70. D | 90. B  |
| 11. D | 31. C | 51. B | 71. B | 91. C  |
| 12. C | 32. C | 52. D | 72. D | 92. A  |
| 13. A | 33. B | 53. B | 73. A | 93. C  |
| 14. B | 34. C | 54. A | 74. C | 94. B  |
| 15. C | 35. D | 55. A | 75. C | 95. B  |
| 16. D | 36. C | 56. C | 76. B | 96. A  |
| 17. B | 37. D | 57. C | 77. C | 97. B  |
| 18. C | 38. C | 58. A | 78. B | 98. E  |
| 19. C | 39. B | 59. D | 79. E | 99. C  |
| 20. D | 40. B | 60. A | 80. D | 100. C |

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# VERBAL ANALOGIES TEST

## 30 QUESTIONS

### 10 MINUTES

#### DIRECTIONS

In each question, the capitalized words have a certain relationship to each other. Select the letter of the parts of words that are related in the same way as the two capitalized words.

1. WOODSMAN:AXE::  
(A) mechanic : wrench  
(B) carpenter : saw  
(C) draftsman : ruler  
(D) doctor : prescription
2. BIGOTRY:HATRED::  
(A) sweetness : bitterness  
(B) segregation : integration  
(C) fanaticism : intolerance  
(D) sugar : grain
3. ASSIST:SAVE::  
(A) request : command  
(B) rely : descry  
(C) hurt : aid  
(D) declare : deny
4. 2:5::  
(A) 5:7  
(B) 6:17  
(C) 6:15  
(D) 5:14
5. DOUBLEHEADER:TRIDENT::  
(A) twins : troika  
(B) ball game : three bagger  
(C) chewing gum : toothpaste  
(D) freak : zoo
6. BOUQUET:FLOWER::  
(A) key : door  
(B) air : balloon  
(C) skin : body  
(D) chain : link
7. LETTER:WORD::  
(A) club : people  
(B) homework : school  
(C) page : book  
(D) product : factory
8. 36:4::  
(A) 3:27  
(B) 9:1  
(C) 12:4  
(D) 5:2
9. GERM:DISEASE::  
(A) trichinosis : pork  
(B) men : woman  
(C) doctor : medicine  
(D) war : destruction
10. WAVE:CREST::  
(A) pinnacle : nadir  
(B) mountain : peak  
(C) sea : ocean  
(D) breaker : swimming
11. CONTROL:ORDER::  
(A) joke : clown  
(B) teacher : pupil  
(C) disorder : climax  
(D) anarchy : chaos
12. WOOD:CARVE::  
(A) trees : sway  
(B) paper : burn  
(C) clay : mold  
(D) pipe : blow
13. STATE:BORDER::  
(A) nation : state  
(B) property : fence  
(C) Idaho : Montana  
(D) planet : satellite
14. SOLIDER:REGIMENT::  
(A) navy : army  
(B) lake : river  
(C) star : constellation  
(D) amphibian : frog

15. APOGEE:PERIGEE::  
(A) dog : pedigree  
(B) opposite : composite  
(C) inappropriate : opposite  
(D) effigy : statue
16. ASYLUM:REFUGEE::  
(A) flight : escape  
(B) destination : traveler  
(C) lunatic : insanity  
(D) accident : injury
17. WORRIED:HYSTERICAL::  
(A) hot : cold  
(B) happy : ecstatic  
(C) lonely : crowded  
(D) happy : serious
18. WORD:CHARADE::  
(A) phrase : act  
(B) idea : philosophy  
(C) fun : party  
(D) message : code
19. PLAYER:TEAM::  
(A) fawn : state  
(B) book : story  
(C) ball : bat  
(D) fish : school
20. BANANA:BUNCH::  
(A) city : state  
(B) world : earth  
(C) president : nation  
(D) people : continent
21. MOTH:CLOTHING::  
(A) egg : larva  
(B) suit : dress  
(C) hole : repair  
(D) stigma : reputation
22. LINCOLN:HUM::  
(A) Washington : D.C.  
(B) Trenton : New Jersey  
(C) New York : U.S.  
(D) Chicago : New York
23. BUZZ:HUM::  
(A) noise : explosion  
(B) reverberation : peal  
(C) tinkle : clang  
(D) echo : sound
24. BOXER:GLOVERS::  
(A) swimmer : water  
(B) bacteriologist : microscope  
(C) businessman : bills  
(D) fruit : peddler
25. DECISION:CONSIDERATION::  
(A) gift : party  
(B) plea : request  
(C) fulfilment : wish  
(D) conference : constitution
26. ILLUSION:MIRAGE::  
(A) haunted : specter  
(B) imagination : concentration  
(C) dream : reality  
(D) mirror : glass
27. FRANCE:EUROPE::  
(A) Australia : New Zealand  
(B) Paris : France  
(C) Israel : Egypt  
(D) Algeria : Africa
28. INSULT:INVULNERABLE::  
(A) success : capable  
(B) poverty : miserable  
(C) purchase : refundable  
(D) assault : impregnable
29. POISON:DEATH::  
(A) book : pages  
(B) music : violin  
(C) kindness : cooperation  
(D) life : famine
30. ROCK:SLATE::  
(A) wave : sea  
(B) boat : kayak  
(C) swimmer : male  
(D) lifeguard : beach

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ANSWERS AND EXPLANATIONS

1. (B) A woodsman cuts with axe; a carpenters with a saw.

2. (C) Bigotry breeds hatred: fanaticism breeds intolerance.

3. (A) when you assist, you help: when you save, you help a great deal. When you request, you ask: when you command, you are very strong in what you ask for.

4. (C)  $21/2 \quad 2 = 5: 21/2 \quad 6 = 15 = 6:15$

5. (A) a double header has two parts: a trident has three teeth. Twins are two of a kind: a troika is a vehicle drawn by three horses.

6. (D) a flower is part of a bouquet; a link is part of a chain.

7. (C) Letters make up a word: page make up a book.

8. (B)  $36 \quad 9 = 4; 9 \quad 9 = 1$

9. (D) A germ often causes diseases a war often causes destruction.

10. (B) The top of the wave is the crest; t h e top of the mountain is the peak.

11. (D) Control results in order: anarchy results in chaos.

12. (C) One creates something by carving wood: one creates by molding clay.

13. (B) A border separates one state from another: a fence separates one property from another.

14. (C) A soldier is part of a regiment: a star is part of a constellation.

15. (C) Apogee and perigee are opposite, as are inappropriate and opposite.

16. A refugee seeks asylum; a traveler seeks a destination.
17. (B) One who is greatly worried may become hysterical: one who is very happy may well be ecstatic.

18. (D) A word may be disguised by a charade; a message may be disguised by a code.

19. (D) A player is part of a team; a fish is part of a school.

20. (A) A banana is one of several bananas in a bunch: a city is one of several cities in a state.

21. (D) A moth will injure clothing: a stigma will injure a reputation.

22. (B) Lincoln is the capital of Nebraska: Trenton is the capital of New Jersey.

23. (C) The words buzz and hum are onomatopoetic, as are the words tinkle and clang.

24. (B) A boxer uses gloves in his profession: a bacteriologist uses a microscope in his profession.

25. (C) Consideration is a likely preliminary before making a decision; wish is preliminary to the fulfilment of that wish.

26. (A) An illusion is a mirage; a haunted is a specter.

27. (D) France is a country in Europe; Algeria is a country in Africa.

28. (D) A person who is invulnerable can not be hurt by an insult; a city that is impregnable cannot be hurt by an assault.

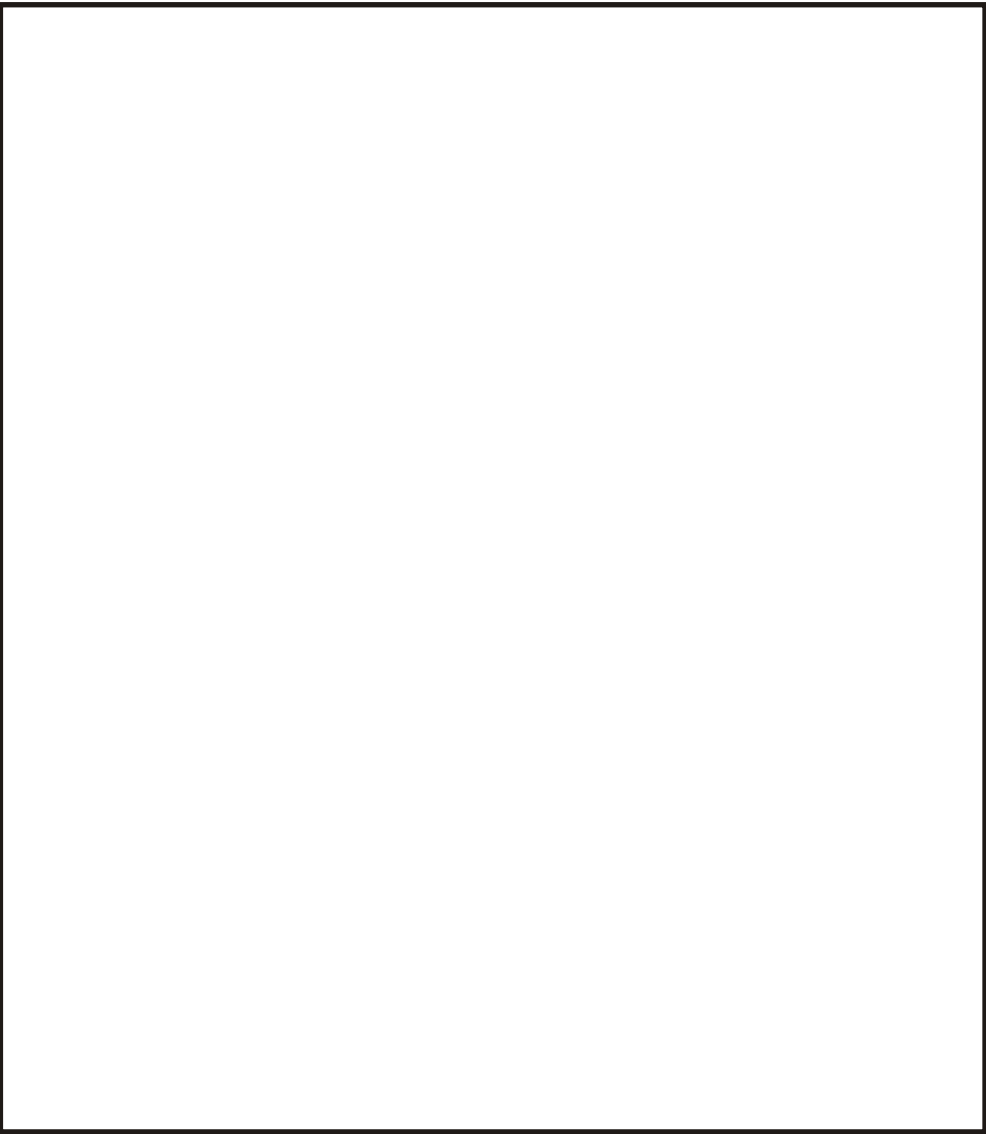
29. (C) Poison often results in death; kindness often results in cooperation.

30. State is a type of rock; a kayak is a type of boat.

PART THREE

GRAPHICAL AND DATA ANALYSIS TESTS

For Oil Companies, Multinationals, Marketing Firms, Industries, Engineering Firms etc.  
Note: Some Banks might use these tests also.



IEC MONTHLY SEMINAR

# GRAPHICAL AND DATA ANALYSIS TEST 1

37 QUESTIONS  
20 MINUTES

## INSTRUCTIONS

In the test you will be using facts and figures presented in various statistical tables to answer questions designed to assess your ability to evaluate numerical data.

In each question, you are given either five or ten options to choose from. One and only one, of the options is correct in each case. Note that for questions which have 10 options, you may have to fill in more than one circle to indicate your answer. For example, for a question for which you thought the right answer was 'AC' you would fill in both circle A and circle C.

NEW ADMISSION FOR PROFESSIONAL ASSOCIATIONS 1984				
	GRADUATES		NON GRADUATES	
		%		%
ACCOUNTANCY & LAW	3572	18.3	5140	34.8
ENGINEERING	7094	36.5	362	2.5
SCIENCE & TECHNOLOGY	2447	12.6	816	5.5
OTHERS (COMMERCIAL)	4759	24.5	3666	24.8
OTHERS (TECHNICAL)	1576	8.1	4786	32.4
ALL PROFESSIONS	19448	100%	14770	100%

## SIMMS & CO. DOUBLE GRAZING SALES REP. MILEAGE CHART

	BROWN	JENNINGS
WEEK 1	490	630
WEEK 2	502	322
WEEK 3	307	496
WEEK 4	725	525
WEEK 5	489	821

## NORTH ATLANTIC OIL FIELDS 1985

Field	Average daily Output (Tones barrels)	Total output Average of previous year	Operating cost per year (million tonnes)	Exploration and capital costs (million tonnes)
ORION	150	90%	210	9,000
JUPITER	224	80%	240	6,000
GALILEO	510	150%	300	8,000
SATUS	418	110%	375	12,000
NEPTUNE	240	75%	120	12,000

## CROSS CHANNEL FERRIES TO AND FROM DOVER

TO CALAIS	TO BOULOGNE	FROM CALAIS	FROM BOULOGNE
3:30	3:00	02:00	03:30
06:00	06:15	04:30	06:45
08:30	09:30	07:00	10:00
etc. until	etc. Until	etc. Until	etc. until
23:30	19:15	22:00	19:45

NB: All time are local time i.e France 1 hour ahead. Crossing time to/from CALAIS : 1 ¼ hours.  
Crossing time to/from BOULOGNE: 1 ¼ hours.



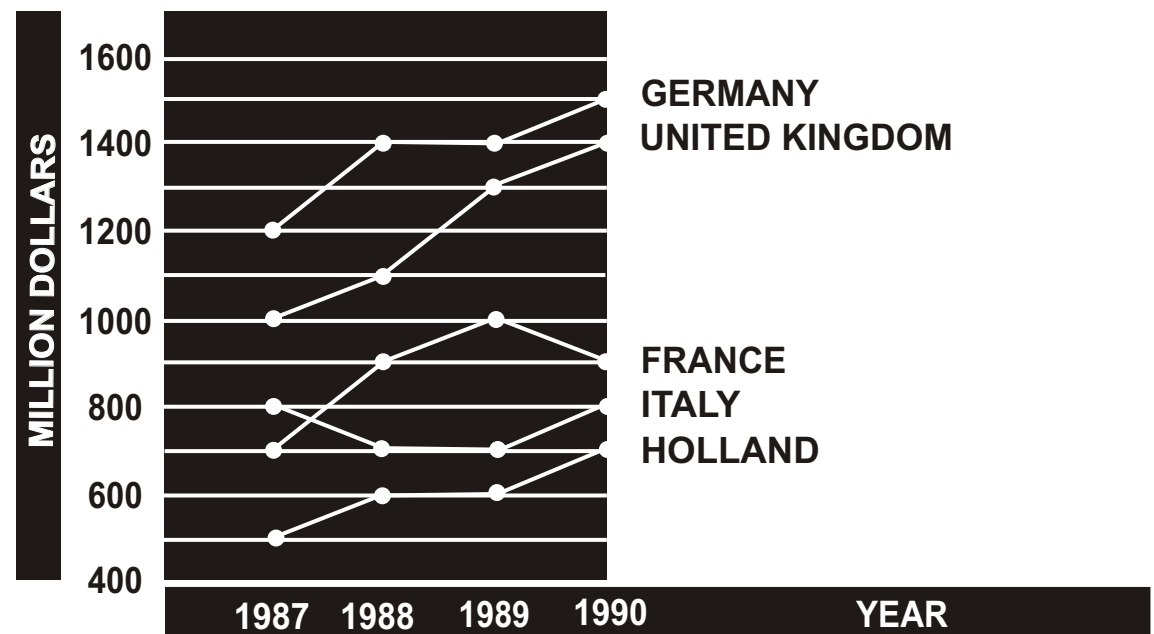
WORLD TOURISM 1981 Most popular Destinations							
UK Tourists		French Tourists		German Tourists		American Tourists	
Spain	2,172	Spain	9476	Denmark	13,307	Canada	11,641
France	2,000	Italy	1,678	Austria	7,369	Mexico	2,700
Italy	690	U.K	1,171	Spain	3,000	Italy	1,840
Germany	673	Switzerland	644	Italy	3,500	U.K	1490
Netherlands	531	Germany	579	France	2,890	Germany	1,232
Beijing	472	Austria	368	Switzerland	1,589	France	1,035
TOTAL HOME POPULATIONS							
<u>UK</u> 50,000		<u>FRENCH</u> 50,000		<u>GERMAN</u> 60,000		<u>AMERICAN</u> 230,000	
ALL FIGURES IN THOUSANDS							

BARLOW CHEMICALS					
	1986	1987	1988	1989	1990
Capital	N789,600	N884,300	N944,000	N1,126,000	N1,261,200
Ratio (turnover Capital)	1.4:1	1.2:1	1.3:1	1.4:1	1.3:1
Pre tax Profit	N157,920	N221,000	N210,000	N225,200	N252,240

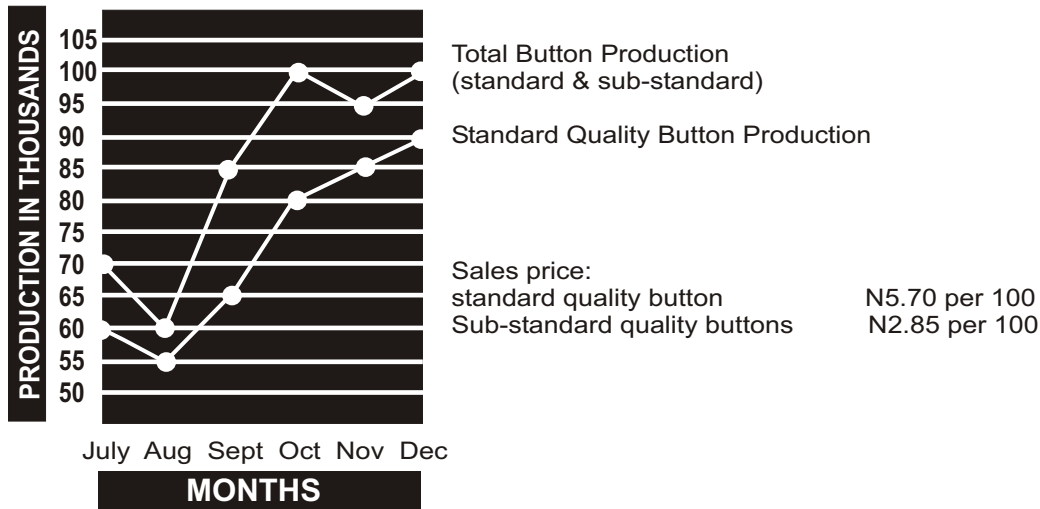
COFFEE PRICE INDEX		
YEAR	GENERAL INFLATION RATE FOR THE YEAR (JAN - DEC)	COFFEE PRICE INDEX AT START OF YEAR
1975	6%	100
1976	10%	124
1977	10%	135
1978	7%	110
1979	12%	123

Population Structure 1985					
	Population At start of Year (Million)	Live Births per 1000 population (Jan-Dec)	Deaths per 1000 population (Jan-Dec)	Percentage of population at start of year aged	
				under 15	60 or over
UK	56.6	13.3	11.8	19	21
France	55.2	13.9	10.0	21	19
Italy	57.1	10.1	9.5	19	19
Germany	61.0	9.6	11.5	15	20
Spain	38.6	12.1	7.7	23	17

Amount spent on computer imports



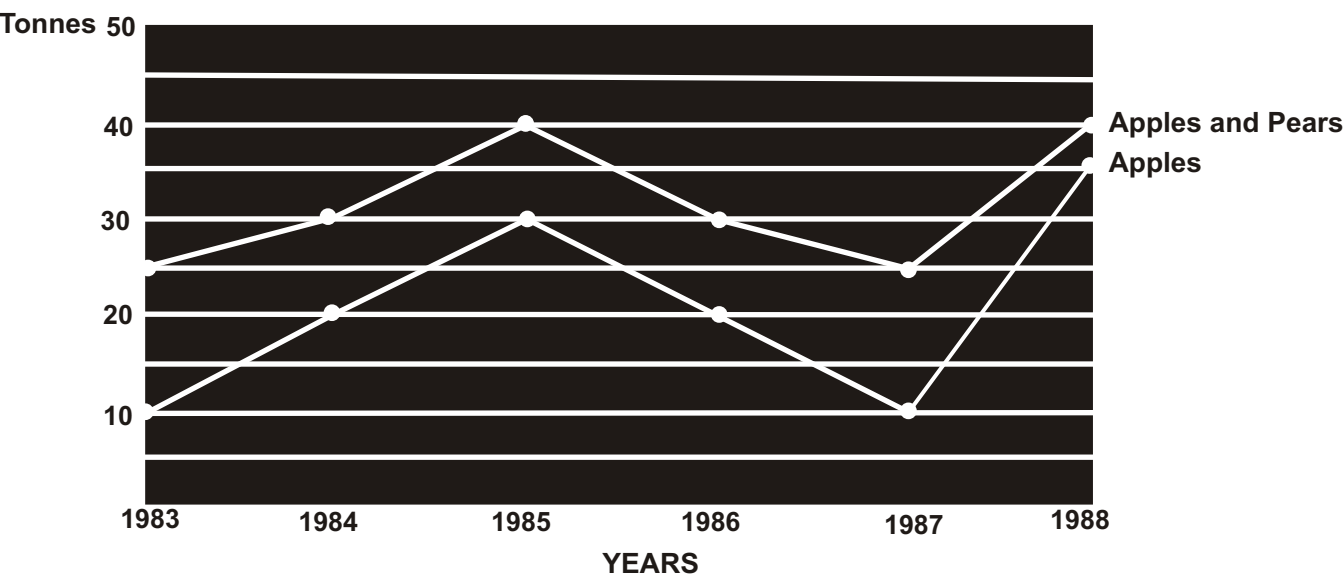
Production of 15mm Buttons, July-December



Newspaper Readership

DAILY NEWSPAPERS	Readership (million)		Percentage of Adults Reading each Paper in 1990	
	1981	1990	Male	Female
The Daily Chronicle	3.6	2.9	7	6
Daily News	13.8	9.3	24	18
The Tribune	1.1	1.4	4	3
The Herald	8.5	12.7	30	23
Daily Echo	4.8	4.9	10	12

YEILD FROM DEVONVDALE ORCHARDS



# START

1. What portion of Devondale orchard's total production in 1985 was accounted for by pear?

A 10%	B 25%	C 30%	D 45%	E 40%
AB 70%	AC 50%	AD 55%	AE 60%	BC 65%

2. How many daily sailing are there from Dover to Boulogne?

A 3	B 4	C 5	D 6	E 7
AB 8	AC 9	AD 10	AE 11	BC none of these

3. Which professional association had the highest number of new admissions in 1984

A Engineering	B Accountancy & Law	C Science & technology	D Others (commercial)	E Others (technical)
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4. Approximately how many miles did Brown cover during the five week period?

A 2,100	B 2,300	C 2,500	D 2,700	E 2,900
AB 3,100	AC 2,300	AD 3,500	AE 3,700	BC 3,900

5. Which field produced the most oil in 1984 (not 1985)?

A Orion	B Jupiter	C Galileo	D Satus	E Neptune
------------	--------------	--------------	------------	--------------

6. What was the approximate turnover of Barlow chemicals in 1989?

A N274,200	B N324,600	C N494,300	D N605,200	E N804,300
AB N1,000,000	AC N1,316,000	AD N1,576,000	AE N1,836,000	BC Cannot say

7. What proportion of the UK population in 1981 was equivalent to the number of UK tourists visiting France in that year?

A 0.2%	B 0.4%	C 0.8%	D 1%	E 2%
AB 4%	AC 6%	AD 8%	AE 10%	BC Cannot say

8. How much higher was the coffee index at the beginning of 1977 than if it has risen with general inflation rate in 1975 and 1976?

A 7.0	B 8.6	C 9.4	D 10.6	E 12.6
AB 15.0	AC 16.6	AD 8.4	AE 20.6	BC Cannot say

9. Which category of professional associations had the greatest ratio of non-graduate to graduate for new admissions in 1984?

A Engineering	B Accountancy & Law	C Science & Technology	D Others (commercial)	E Others (technical)
------------------	---------------------------	------------------------------	-----------------------------	----------------------------

10. How many more German tourists visited France than French tourists visited Germany in 1983?

A 740,00.0	B 1,910,000	C 2,311,000	D 2,650,000	E 3, 131,000
AB 3,428,000	AC 3,840,000	AD 4,016,000	AE 4,328,000	BC 4,840,000

11. Between which years did Barlow chemicals' pre-tax profit as a percentage of capital decreased?

A 1986-87 & 1987-88	B 1986-87 & 1988-89	C 1987-88 & 1989-90	D 1987-88 & 1988-89	E 1988-89 & 1989-90
---------------------------	---------------------------	---------------------------	---------------------------	---------------------------

12. If output for the Neptune field increased by 50% in 1985, by how many thousands of barrel would it average daily output be more or less in 1985 compared with output in 1984?

A 40 less	B 20 less	C The same	D 20 more	E 40 more
AB 70 more	AC 110 more	AD 160 more	AE 180 more	BC Cannot say

13. If the price of coffee rose by the ratio of inflation during 1979, approximately how much higher would the index have been at the start of 1975?

A 15	B 21	C 27	D 32	E 38
AB 43	AC 49	AD 54	AE 61	BC Cannot say

14. Between which two weeks was there the greatest proportional increase or decrease in Brown's mileage, relative to the previous week?

A Weeks 1-2	B Weeks 2-3	C Weeks 3-4	D Week 4-5	E Cannot say
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15. What was the approximate ratio of German to French tourists visiting Austria in 1981?

A	B	C	D	E
3:1	6:1	10:1	15:1	20:1
AB	AC	AD	AE	BC
25:1	30:1	35:1	40:1	Cannot say

16. If the output figure for the Galileo field represents crude oil only, which was 30% of the total output with the remainder being water, how many thousands of barrels of water were produced per day along with the oil?

A	B	C	D	E
270	340	680	910	1190
AB	AC	AD	AE	BC
1380	1700	2300	2860	Cannot say

17. If Brown received 5k per mile less than Jennings and Jennings was due N220.50 for week 1, how much was Brown due?

A	B	C	D	E
N14700	N171.50	N196.00	N252.00	N275.0
AB	AC	AD	AE	BC
N275.80	N292.00	N303.50	N322.50	none of these

18. If pears were sold for N385 per tonne, what was the value of Devondale Orchards' crop of pears for 1987?

A	B	C	D	E
N7,475	N8,475	N9,625	N10,475	N11,475
AB	AC	AD	AE	BC
N12,475	N13,475	N14,475	N15,475	Cannot say

19. What was the appropriate pre-tax profit of Barlow Chemicals as a percentage of turnover in 1990?

A	B	C	D	E
1%	5%	8%	11%	15%
AB	AC	AD	AE	BC
19%	23%	28%	32%	Cannot say

20. Which oil field has the highest ratio of annual operating costs to exploration and capital cost.

A	B	C	D	E
Orion	Jupiter	Galileo	Satus	Neptune

21. What proportion of the total population of the tourist nations shown was equivalent to the number visiting Italy in 1981?

A	B	C	D	E
0.1%	0.2%	0.3%	0.4%	1%
AB	AC	AD	AE	BC
2%	3%	4%	10%	20%

22. If Davondale Orchards' crop of apples was of equal value to their crop of pears in 1983 and pears were worth N300 per ton, how much were apples worth per ton?

A	B	C	D	E
N100	N125	N150	N175	N200
AB	AC	AD	AE	BC
N225	N250	N275	N300	none of these

23. In which category of professional associations did the ratio of graduate to non-graduate admissions in 1984 exceed 10:1?

A	B	C	D	E
Accountancy & Law	Engineering	Science & Technology	Others (commercial)	none of these

24. At the start of which year did the coffee price index show the greatest percentage change, relative to the start of which year?

A	B	C	D	E
1976	1977	1978	1979	cannot say

25. How many Ferries from the two French ports are due to arrive at Dover between 1.45 pm and 4.00 pm (Dover time)?

A	B	C	D	E
0	1	2	3	4
AB	AC	AD	AE	BC
5	6	7	8	none of these

26. What percentage of the total 15mm button production was classed as sub-standard in September?

A	B	C	D	E
10.5%	23.5%	15%	17.5%	20%

27. How many live births occurred in 1985 in Spain and Italy together (to the nearest 1,000)?

A	B	C	D	E
104,000	840,000	1,044,000	8,400,000	10,440,000

28. In 1989, how much more than Italy did Germany spend on computer imports?

A	B	C	D	E
650 million	700 million	750 million	800 million	850 million

29. Which countries experienced a drop in the value of computers imported from one year to the next?

A	B	C	D	E
France & Italy	France & Holland	Holland & Italy	U.K. & Holland	Italy & U.K

30. Which newspaper showed the largest change in female readership between 1981 and 1990?

A	B	C	D	E
Daily echo	The Tribune	The Herald	The Daily Chronicle	Cannot say

31. By how much did the total sales value of November's button production vary from October's?
- |            |            |            |            |        |
|------------|------------|------------|------------|--------|
| A          | B          | C          | D          | E      |
| N28.50     | N142.50    | N285.00    | N427.50    | No     |
| (Decrease) | (Decrease) | (Increase) | (Decrease) | change |
32. What newspaper was read by a higher percentage of females than males in 1990?
- |             |            |            |            |                     |
|-------------|------------|------------|------------|---------------------|
| A           | B          | C          | D          | E                   |
| The Tribune | The Herald | Daily News | Daily Echo | The Daily Chronicle |
33. What was the net effect on the UK population of the live birth and death rates in 1985?
- |                    |                    |                    |                     |            |
|--------------------|--------------------|--------------------|---------------------|------------|
| A                  | B                  | C                  | D                   | E          |
| Decrease of 66,700 | Increase of 84,900 | Increase of 85,270 | Increase of 752,780 | Cannot say |
34. What was the loss in potential sales revenue attributable to the production of sub-standard (as opposed to standard) bottoms over the 6 month period?
- |         |         |           |           |           |
|---------|---------|-----------|-----------|-----------|
| A       | B       | C         | D         | E         |
| N213.75 | N427.50 | N2,137.50 | N2,280.00 | N4,275.00 |
35. What was the combined readership of the Daily Chronicle, Echo and Tribune in 1981?
- |      |     |     |      |     |
|------|-----|-----|------|-----|
| A    | B   | C   | D    | E   |
| 10.6 | 8.4 | 9.5 | 12.2 | 7.8 |
36. Which country had the highest number of people aged 60 or over at the start of 1985?
- |     |        |       |         |       |
|-----|--------|-------|---------|-------|
| A   | B      | C     | D       | E     |
| U.K | France | Italy | Germany | Spain |
37. If the amount spend on computer imports into the U.K in 1991 was 20% lower than in 1990, what was spent in 1991?
- |      |      |      |      |      |
|------|------|------|------|------|
| A    | B    | C    | D    | E    |
| 1080 | 1120 | 1160 | 1220 | 1300 |

# ANSWER KEY

- |       |        |        |       |
|-------|--------|--------|-------|
| 1. B  | 11. D  | 21. AB | 31. E |
| 2. D  | 12. AE | 22. C  | 32. D |
| 3. B  | 13. E  | 23. B  | 33. B |
| 4. C  | 14. C  | 24. A  | 34. C |
| 5. C  | 15. E  | 25. A  | 35. C |
| 6. AD | 16. E  | 26. B  | 36. D |
| 7. AB | 17. A  | 27. C  | 37. B |
| 8. AD | 18. C  | 28. B  |       |
| 9. E  | 19. E  | 29. A  |       |
| 10. C | 20. E  | 30. E  |       |



## GRAPHICAL ANALYSIS EXPLANATORY

1. Total production in 1985 = 40 tonnes  
 Total apple production = 30 tonnes  
 Therefore pears production = (40 - 30) tonnes  
 = 10 tonnes

$$\frac{10}{40} \times \frac{100}{1} = 25\% \text{ (B)}$$

2. The times from Dover to Boulogne are:  
 3:00, 6:15, 9:30, 12:45, 16:00, 19:15  
 There are 6 sailing altogether. (D)

3. No of Accounting & law graduate 3572  
 No of accounting & law non graduate 5140  
 Total 8712

This is the highest of all the professional association new admission in 1984 (B)

4.  $490 + 502 + 307 + 725 + 489 = 2513$   
 Approximately 2500 (C)

5. Total average daily output for Galileo in 1985 = 510  
 Total average output previous year = 150%  
 Which is given as:  $\frac{150}{100} \times \frac{510}{1} = 765$

This is the highest production field in 1984 (C)

6. Capital in 1989 = N1,126,00  
 Ratio of turnover: capital = 1.4:1  
 Therefore turnover =  $1.4 \times 1,126,000$   
 Approximately = N1,576,000 (AD)

7. Total home population of UK in 1981 = 50,000  
 Total population UK visiting France = 2,000  
 $\therefore$  proportion =  $\frac{2,000}{50,000} \times \frac{100\%}{1} = 4\% \text{ (AB)}$

8. Coffee index at the end of 1975

= 6% rise from 100

$$= \frac{106}{100} \times \frac{100}{1} = 106$$

Index at the end of 1976 is 10% of 106 which is

$$\frac{110}{100} \times \frac{106}{1}$$

= 116.6

Coffee price index at the beginning of 1997 is 135.

$$\therefore 135 - 116.6 = 18.4 \text{ (AD)}$$

9. No of others (Technical) graduates = 1576  
 No of others (Technical) non graduates = 4786  
 Ratio of graduates to non-graduates =  $\frac{4786}{1576}$

This is the highest ratio of all the professional associations = 3:1 (E)

10. No. Of German tourist that visited France = 2,890,000  
 No. Of French tourist that visited Germany = 579,000  
 $1,890,000 - 579,000 = 2,311,000 \text{ (C)}$

11. Pre tax profit as a percentage of capital  
 $= \frac{\text{Pre tax profit}}{\text{capital}} \times \frac{100}{1}$

For the different years

1986	1987	1988	1989	1990
20	25	22	20	20

$\therefore$  the decreases are (1987 - 88) & (1988 - 89) (D)

12. Neptune average output in 1985 = 240  
 Output for 1986 =  $\frac{150}{100} \times \frac{240}{1} = 360$   
 Output for 1984 =  $\frac{75}{100} \times \frac{240}{1} = 180$   
 Therefore  $360 - 180 = 180 \text{ more (AE)}$

13. Coffee index at the start of 1975 = 100  
 Index at the start of 1979 = 123  
 Index at the start of 1980 with respect to inflation of 12%  

$$= \frac{112}{100} \times \frac{123}{1}$$

$$= 137.76$$
 The difference =  $137.76 - 100$   

$$= 37.76$$
 Approximately = 38 (E)
14. Brown's mileage for week 3 = 307  
 Brown's mileage for week 4 = 752  
 Difference =  $725 - 307$   

$$= 418$$
 Week 3 - 4 (C)
15. W. German tourist visiting Austria = 7,369  
 French tourist visiting Austria = 368  
 Ratio 7,369 : 368  

$$20:1 \text{ (E)}$$
16. Total average daily output for Galileo = 510, this represent crude oil only, which was 30% of the total output.  
 The remainder = 70% which is water therefore the barrel of water produced  

$$= \frac{70}{30} \times 510 = 1190 \text{ (E)}$$
17. Jennings due = N220.50k  
 Jennings mile = 630  
 Jennings rate =  $\frac{220.50}{630} = \text{N}0.35\text{k}$   
 Brown received 5k per mile less  

$$:- 35\text{k} - 5\text{k} = 30\text{k per mile for brown}$$
 For a distance of 490 covered by brown  

$$= \text{N}490 \times \text{N}0.30\text{k}$$

$$= \text{N}147.00 \text{ (A)}$$
18. In 1987 the quantity of apples = 10 tonnes  
 In 1987 the quantity of pears = 25 tonnes  
 i.e  $35 - 10 = 25$  tonnes  
 but the pears were sold for N385 per ton  

$$= 25 \times 385 = \text{N}9625 \text{ (C)}$$



19. Capital for 1990 = N1,261,200  

$$= 1.3 \times 1,261,200$$
 Turnover = 1,639,560  
 pre tax profit = N252,240  

$$\therefore \frac{252,240}{1,639,560} \times 100\%$$

$$= 15\% \text{ (E)}$$
20. Operating cost for Neptune = 120  
 Exploration cost for Neptune = 12,000  
 Ratio of operation cost: Exploration cost  

$$= 120:12,000$$

$$= 1:100 \text{ (E)}$$
21. Total population of tourists visiting Italy = 7708(690+1678+3500+1840)  
 Total population of the tourist nations = 390,000  

$$\therefore = \frac{7708}{390,000} \times 100\%$$

$$= 1.976 = 2\% \text{ (AB)}$$
22. Pears 25-10= 15 tonnes  
 Apples 10 tonnes  
 Pears 15xN300=N4500  
 Apples  $\frac{\text{N}4500}{10} = \text{N}450 \text{ per ton in 1983}$
23. Engineering  $\frac{7094}{19.6} : 362$   

$$19.6 : 1 \text{ (B)}$$
24. Coffee price index at start of 1975 = 100  
 Coffee price index at start of 1976 = 124  
 Different =  $124 - 100 = 24$   

$$\frac{24}{124} \times \frac{100}{1}$$

$$= 24.0\% \text{ (A)}$$
25. It takes a ferry from Calais to Dover 2hrs 30mins and it also takes a ferry from Boulogne to Dover 3hrs 15mins. The time difference between 1:45 and 4:00 is 2hrs 15mins, this time does not accommodate any of the two ferries to arrive Dover. (A)
26.  $\frac{20,000}{85,000} \times 100\% = 23.5\%$   
 (B)



$$27. \text{ Live births in SPAIN} = \frac{38,600,000}{1000} \times 12.1 = 467,060$$

$$\text{Live births in ITALY} = \frac{57,100,000}{1000} \times 10.1 = \frac{576,710}{1,043,770}$$

Ans: Approximately 1,044,000 (C)

$$28. 1400 - 700 = 700 \text{ million (B)}$$

$$29. \text{ FRANCE AND ITALY (A)}$$

$$30. \text{ Insufficient information to solve the question (E)}$$

$$31. \text{ Total sales in November} \\ \text{Standard: } \frac{85,000}{100} \times N5.70 = N4845$$

$$\text{Sub Standard: } \frac{10,000}{100} \times 2.85 = N285 \\ \text{November's total sales} \quad \underline{N5130}$$

$$\text{Total sales in October} \\ \text{Standard: } \frac{80,000}{100} \times N5.70 = N4560$$

$$\text{Sub Standard: } \frac{20,000}{100} \times 2.85 = N570 \\ \text{October's total sales} \quad \underline{N5130}$$

There was no change in the sales value of October and November. (E)

$$32. \text{ The ratio of female to male in 1990 for Daily Echo newspaper is 12:10 which is the highest (D)}$$

$$33. \text{ Live births in UK} = \frac{56,600,000}{1000} \times 13.3 = 752,780$$

$$\text{Death in UK} = \frac{56,600,000}{1000} \times 11.8 = 667,880$$

$$\text{Difference} \quad \underline{84,900}$$

Answer: 84,900 increase (B)

$$34. \text{ Due to production of sub standard buttons, total potential sales decreased}$$

$$\text{July} \quad 10,000$$

$$\text{August} \quad 5,000$$

$$\text{September} \quad 20,000$$

$$\text{October} \quad 20,000$$

$$\text{November} \quad 10,000$$

$$\text{December} \quad \underline{10,000}$$

75,000 Sub standard buttons were produced and it was sold for half of the price.

$$\text{I.e} \quad \frac{75,000}{100} \times 2.85 = N2137.50 \text{ (C)}$$

$$35. 3.6 + 4.8 + 1.1 = 9.5 \text{ (C)}$$

$$36. \text{ Number of people aged 60 or over at the start of 1985 in each country}$$

$$\text{UK:} \quad \frac{21}{100} \times 56.6 = 11.886$$

$$\text{FRANCE:} \quad \frac{19}{100} \times 55.2 = 10.488$$

$$\text{ITALY:} \quad \frac{19}{100} \times 57.2 = 10.849$$

$$\text{GERMANY:} \quad \frac{20}{100} \times 61.0 = 12.2$$

$$\text{SPAIN:} \quad \frac{17}{100} \times 38.6 = 6.562$$

Ans. Germany has the highest number of people (D)

$$37. \quad \frac{80}{100} \times 1400 = 1120 \text{ (B)}$$

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- \* Visit our website [www.iecnetwork.com](http://www.iecnetwork.com) and download more questions and answers
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- \* Call 08033438062 for lecture arrangement at our office.

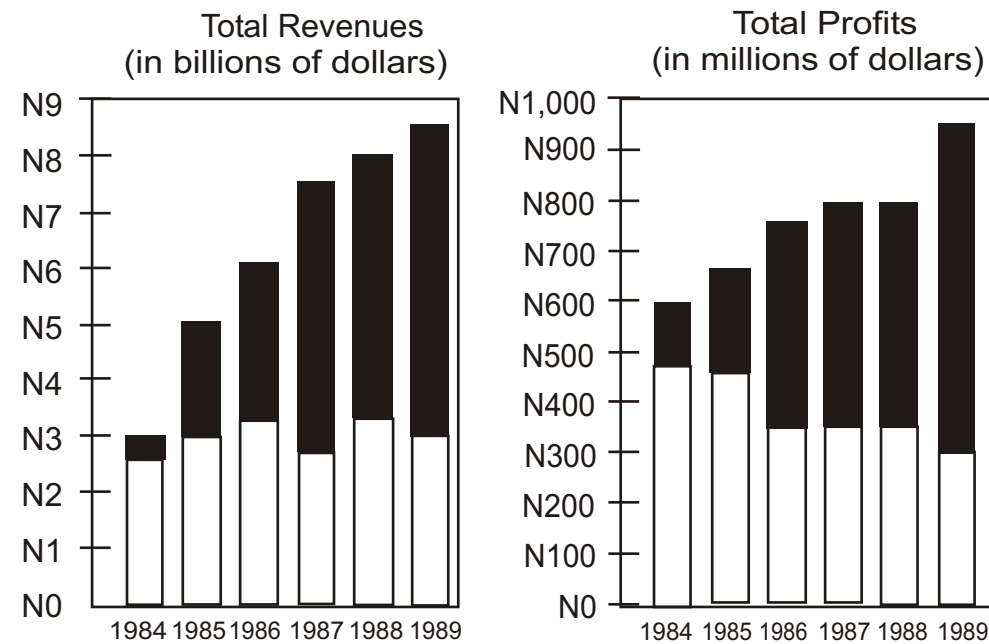
# GRAPHICAL ANALYSIS TEST II

59 QUESTIONS  
30 MINUTES

## DIRECTIONS

Each of the following graphs is followed with questions consisting of five choices. Choose the correct answer and mark it on your answer sheet.

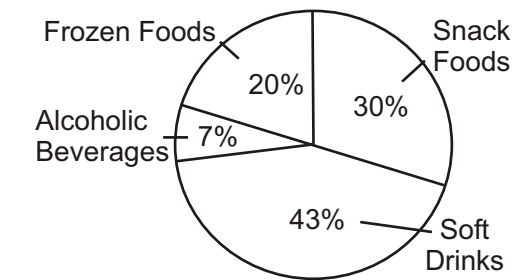
### MEGACORP, INC. REVENUE AND PROFIT DISTRIBUTION FOR FOOD - AND NONFOOD-RELATED OPERATIONS, 1984 - 1989



□ FOOD RELATED  
■ NONE-FOOD RELATED

Note: Drawn to Scale

### PERCENT OF REVENUES FROM FOOD-RELATED OPERATIONS IN 1989 BY CATEGORY

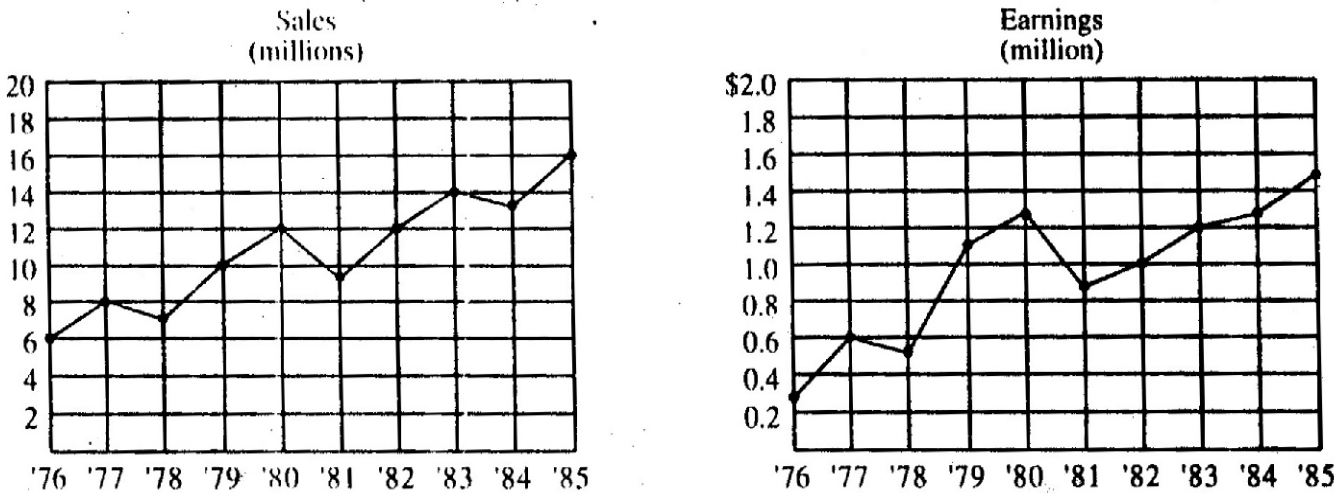


Questions 1-5 are based on the following graphs.

- Approximately how much did total revenues increase from 1984 to 1987?  
(A) N0.5 billion  
(B) N1.5 billion  
(C) N4.0 billion  
(D) N4.5 billion  
(E) N5.0 billion
- For the year in which profits from food-related operation increased over the previous year, total revenues were approximately  
(A) N3.5 billion  
(B) N4.5 billion  
(C) N5.7 billion  
(D) N6.0 billion  
(E) N8.0 billion
- In 1988, total profits represented approximately what percent of Megacorp's total revenues?  
(A) 50%  
(B) 20%  
(C) 10%  
(D) 5%  
(E) 1%
- For the first year in which revenues from nonfood-related operations surpassed N4.5 billion, total profits were approximately.  
(A) N250 billion  
(B) N450 billion  
(C) N550 billion  
(D) N650 billion  
(E) N800 billion
- In 1989, approximately how many millions of dollars were revenues from frozen food operations?  
(A) 1,700  
(B) 1,100  
(C) 900  
(D) 600  
(E) 450

Questions 6 - 10 are based on the following figure

SALES AND EARNINGS OF COMPANY K



6. From 1977 to 1983, inclusive, what was the amount of the greatest increase in earnings from one year to the next?
- (A) N300,000  
(B) N600,000  
(C) N750,000  
(D) N1,000,000  
(E) N1,200,000
7. From 1980 to 1984 inclusive, in which year did sales change by the greatest percent over the previous year?
- (A) 1980  
(B) 1981  
(C) 1982  
(D) 1983  
(E) 1984
8. For the years 1981 to 1985, inclusive average earnings of Company K were approximately
- (A) N1,180,000  
(B) N998,000  
(C) N920,000  
(D) N880,000  
(E) N720,000
9. From 1976 to 1985, earnings of Company K increased by what percent?
- (A) 150%  
(B) 200%  
(C)  $233\frac{1}{3}\%$   
(D) 400%  
(E) 500%
10. In how many of the years shown were earnings equal to or greater than 10 percent of sales?
- (A) 3  
(B) 4  
(C) 5  
(D) 6  
(E) 7

Questions 11 - 13 refer to the following graph.

20 MAJOR COUNTRIES



.... & COUNTRIES



.... 5 COUNTRIES

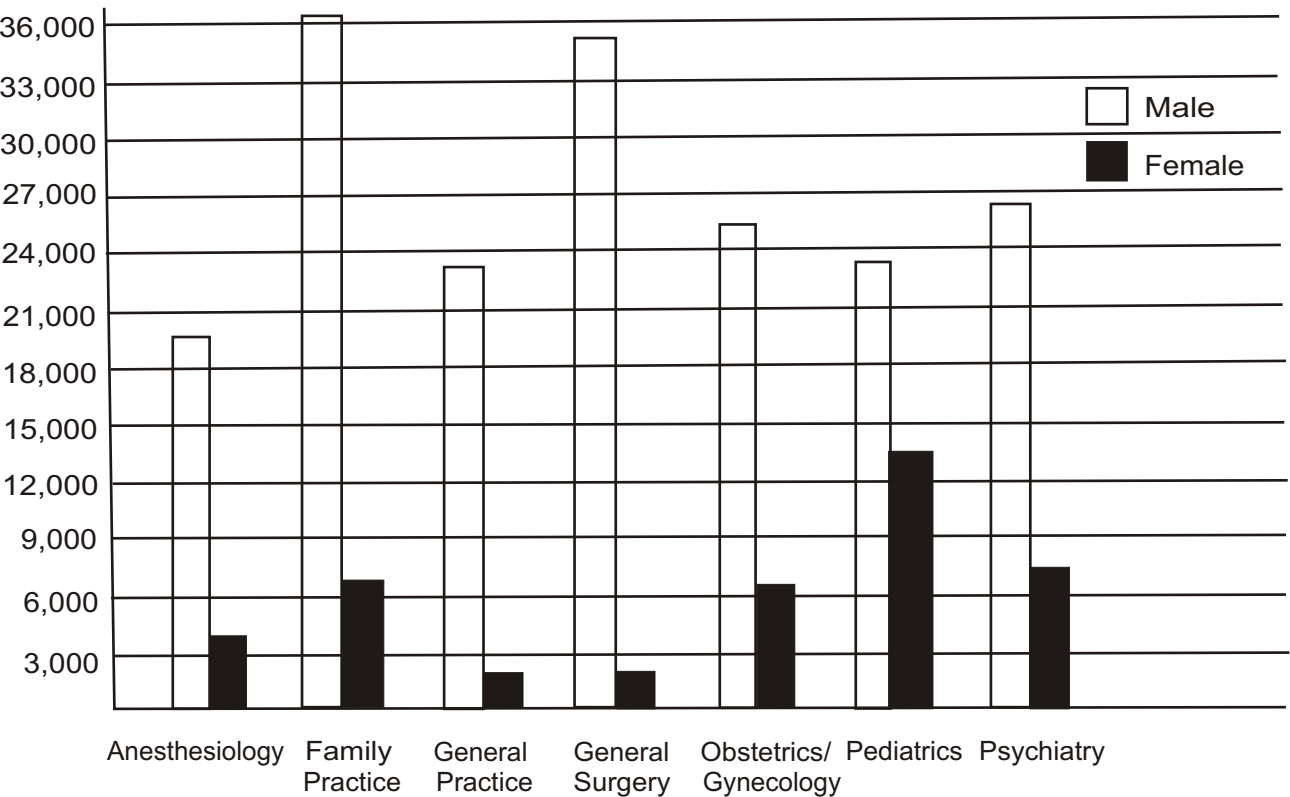


11. If ND was appropriated for Development Loans for the (FY 1967) fiscal year 1967, assuming that each of the 8 countries received the same amount of money, what would the amount of the loan for Turkey have been?
- (A) N.105D  
(B) N.125D  
(C) N.84D  
(D) N8.4D  
(E) N12.5D
12. For the (FY 1967) fiscal year 1967, 72 percent of the Supporting assistance was proposed for Vietnam. If the other four major recipients received the same amount of money under the program of the Agency of International Development, what percent of the entire amount would Korea have received?
- (A) 1.4  
(B) 1.75  
(C) 5.25  
(D) 8.25  
(E) 14.4
13. According to the data furnished, what percent of the proposed economic assistance would Brazil have received during the (FY 1967) fiscal year 1967?
- (A) 2.3  
(B) 9.2  
(C) 10.5  
(D) 12.8  
(E) cannot be determined from the data furnished

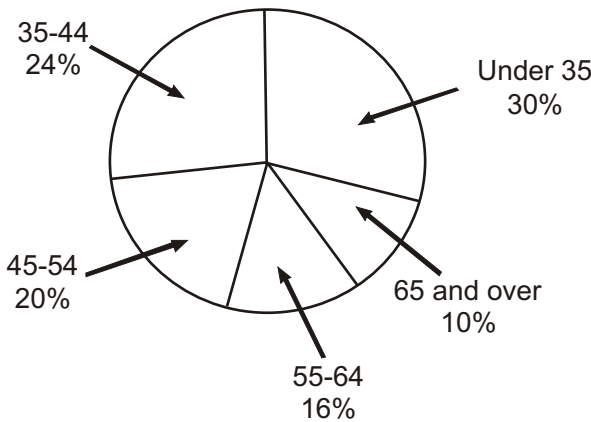


Questions 14 - 18 refer to the charts below

NIGERIA PHYSICIANS IN SELECTED SPECIALTIES BY SEX, 1986



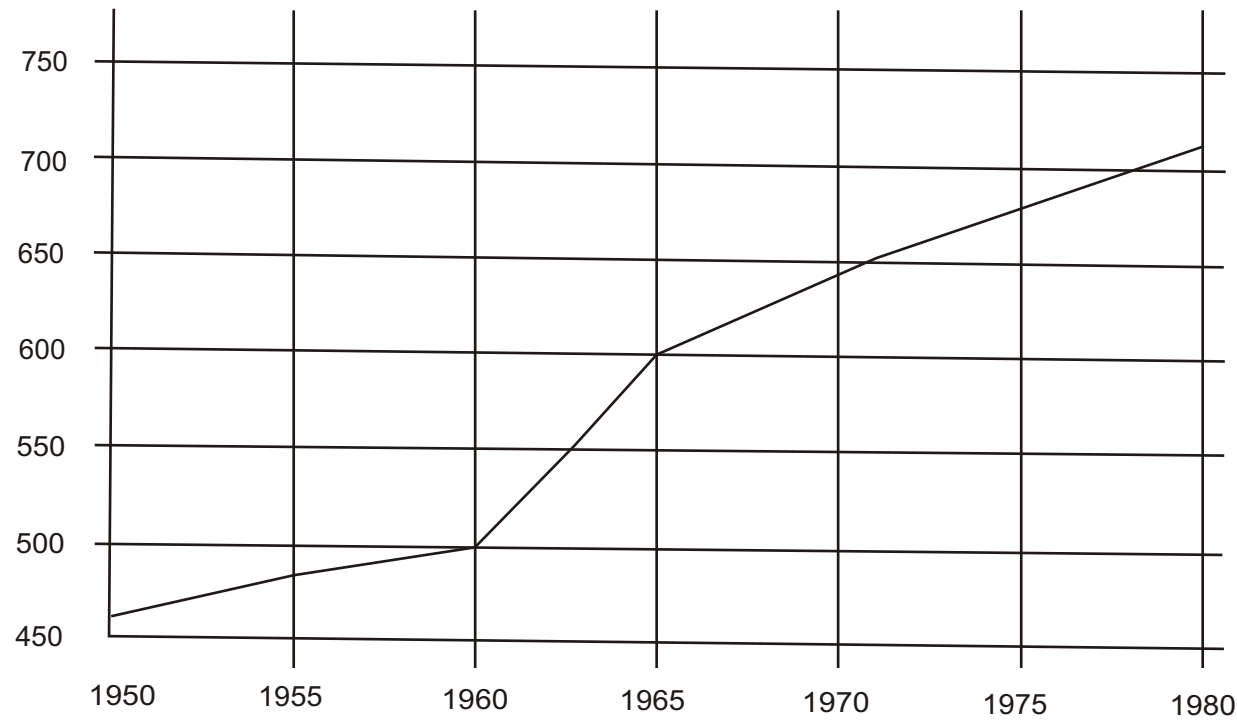
GENERAL SURGERY PHYSICIANS BY AGE, 1986



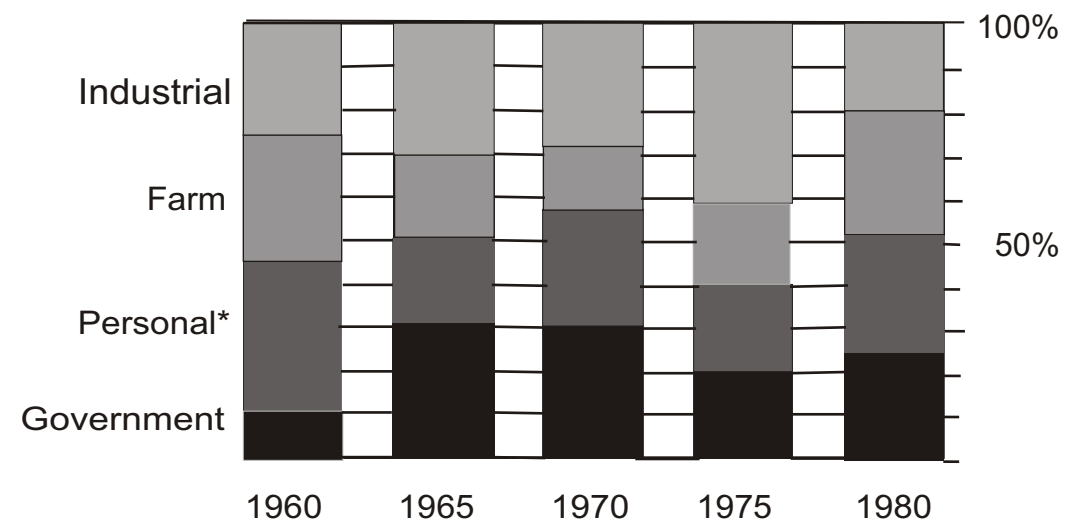
14. Approximately what percent of all general practice physicians in 1986 were male?  
(A) 23%  
(B) 50%  
(C) 75%  
(D) 82%  
(E) 90%
15. Which of the following physician specialties had the lowest ratio of males to females in 1986?  
(A) Family practice  
(B) General surgery  
(C) Obstetrics/gynecology  
(D) Pediatrics  
(E) Psychiatry
16. In 1986, approximately how many general surgery physicians were between the ages of 45 and 54, inclusive?  
(A) 5,440  
(B) 6,300  
(C) 7,350  
(D) 7,800  
(E) 8,900
17. If in 1986 all the family practice physicians represented 7.5 percent of all the physician in the Nigeria, approximately how many physicians were there total?  
(A) 300,000  
(B) 360,000  
(C) 430,000  
(D) 485,000  
(E) 570,000
18. If the number of female general surgeon physicians in the under 35 category represented 3.5 percent of all the general surgeon physicians, approximately how many male general surgeon physicians were under 35 years?  
(A) 9,200  
(B) 9,800  
(C) 10,750  
(D) 11,260  
(E) 11,980

Questions 19 - 23 refer to the charts below

ENERGY USE BY YEAR, COUNTRY Y, 1950-1980  
(in millions of kilowatt-hours)



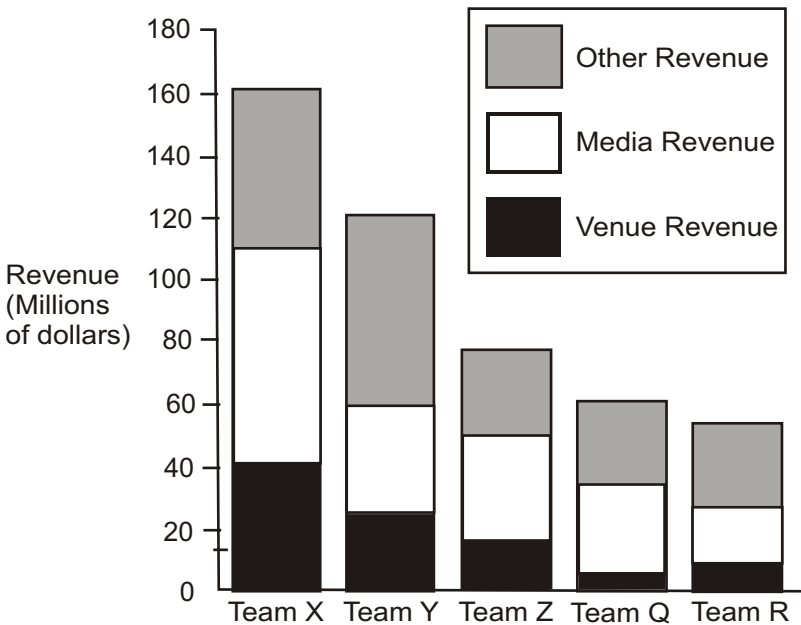
ENERGY USE BY TYPE, COUNTRY Y



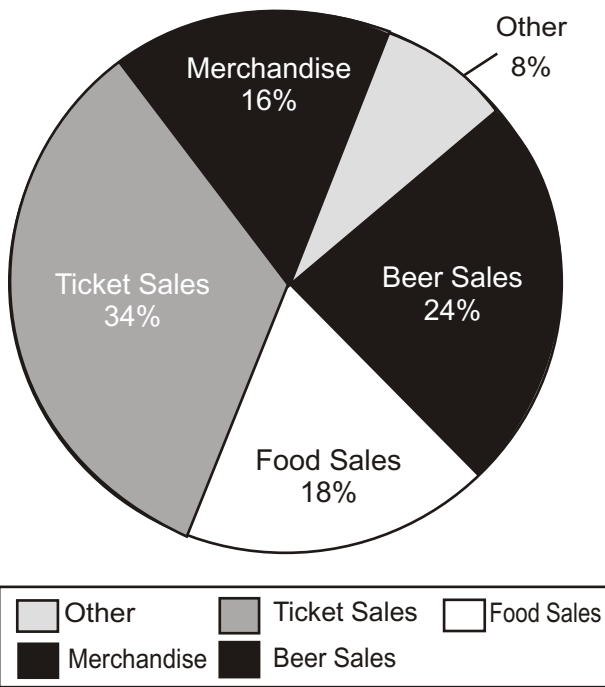
19. In which of the following years was the energy use in country Y closest to 650 million kilo-watt-hours?  
(A) 1960  
(B) 1965  
(C) 1970  
(D) 1975  
(E) 1980
20. In 1965, how many of the categories shown had energy use greater than 150 million kilo-watt-hours?  
(A) none  
(B) one  
(C) two  
(D) three  
(E) four
21. In which of the following years was industrial use of energy greatest in country Y?  
(A) 1960  
(B) 1965  
(C) 1970  
(D) 1975  
(E) 1980
22. If the population of country Y increased by 20 percent from 1960 to 1965, approximately what was the percent decrease in the per-capita personal use of energy between those two years?  
(A) 0%  
(B) 17%  
(C) 25%  
(D) 40%  
(E) it cannot be determined from the information given.
23. Which of the following can be inferred from the graphs?  
I. Farm use of energy increased between 1960 and 1980  
II. In 1980, industrial use of energy was greater than industrial use of energy in 1965  
III. More people were employed by the government of country Y in 1980 than in 1960.  
(A) I only  
(B) II only  
(C) I and II only  
(D) II and III only  
(E) I, II and III

Questions 24 - 27 refer to the following graphs

**TEAM REVENUES FOR 1997**



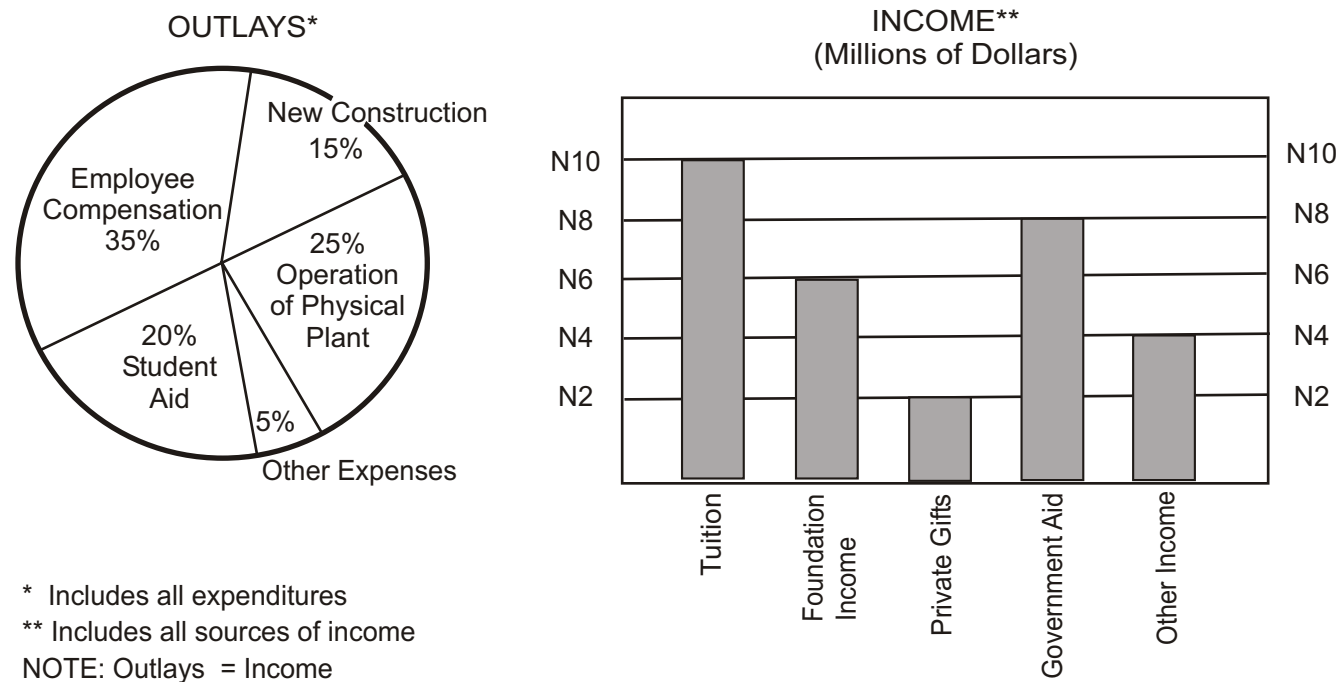
**Percentages of Venue Revenues for Team X, 1997**



24. For the team with the median amount of venue revenue for 1997, media revenue represented approximately what percent of that team's total revenue for that year?
- (A) 25%  
(B) 30%  
(C) 40%  
(D) 55%  
(E) 60%
25. Of the following, which is the closest to the amount of revenues, in millions of dollars, earned by Team X through food sales in 1997?
- (A) 7  
(B) 10  
(C) 14  
(D) 18  
(E) 22
26. Ticker sales represented approximately what percent of total revenue for Team X in 1997?
- (A) 4%  
(B) 8%  
(C) 13%  
(D) 34%  
(E) 54%
27. If Team Y earned a total revenue of N150 million in 1998, Team Y's total revenue increased by approximately which percent from 1997 to 1998?
- (A) 20%  
(B) 25%  
(C) 30%  
(D) 35%  
(E) 40%

Questions 28 - 30 are based on the following graphs

### BUDGET INFORMATION FOR COLLEGE M IN YEAR N



28. For the year shown, College M spent how much money on the operation of its physical plant?

(A) N2,500,000  
(B) N4,000,000  
(C) N7,500,000  
(D) N8,000,000  
(E) N9,500,000

29. For the year shown, what percentage of College M's income came from foundation income?

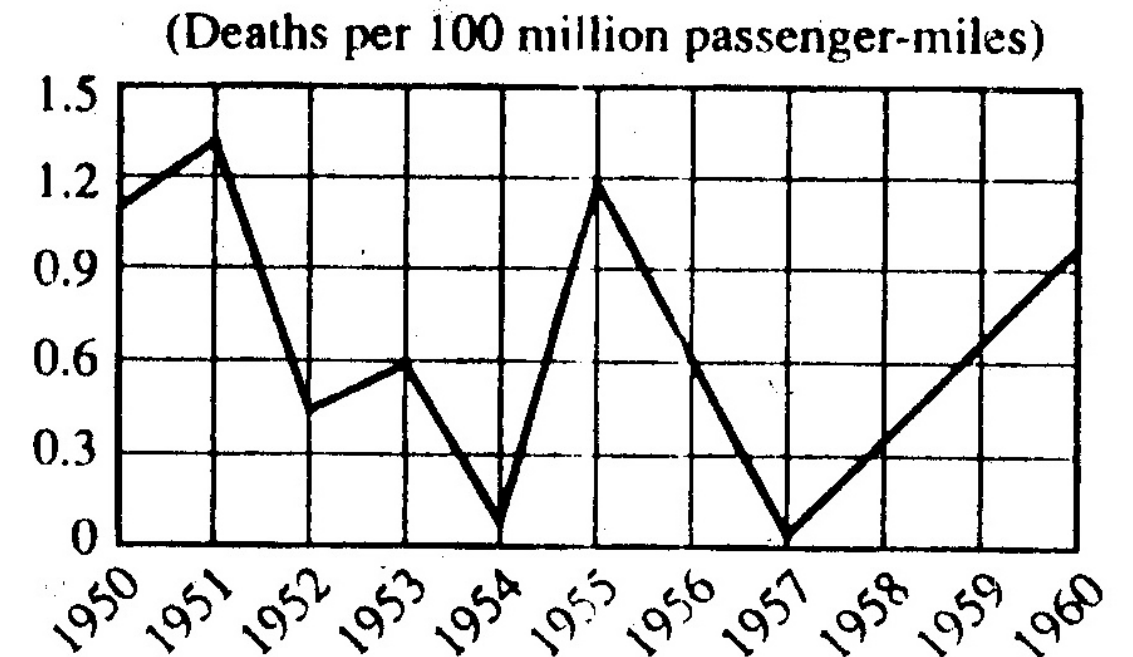
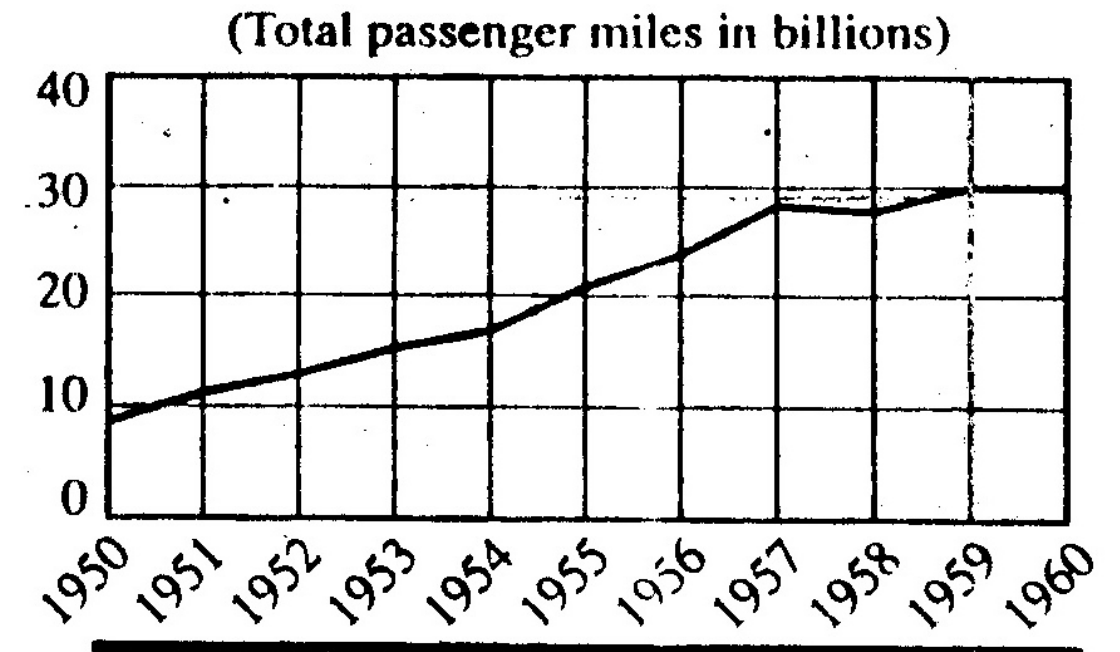
(A) 6%  
(B) 20%  
(C) 25%  
(D) 33%  
(E) 60%

30. For the year shown, how much more money was spent by College M on employee compensation than on student aid?

(A) N16,500,000  
(B) N10,500,000  
(C) N6,000,000  
(D) N4,500,000  
(E) N2,500,000

Questions 31 - 35 are based on the following graphs

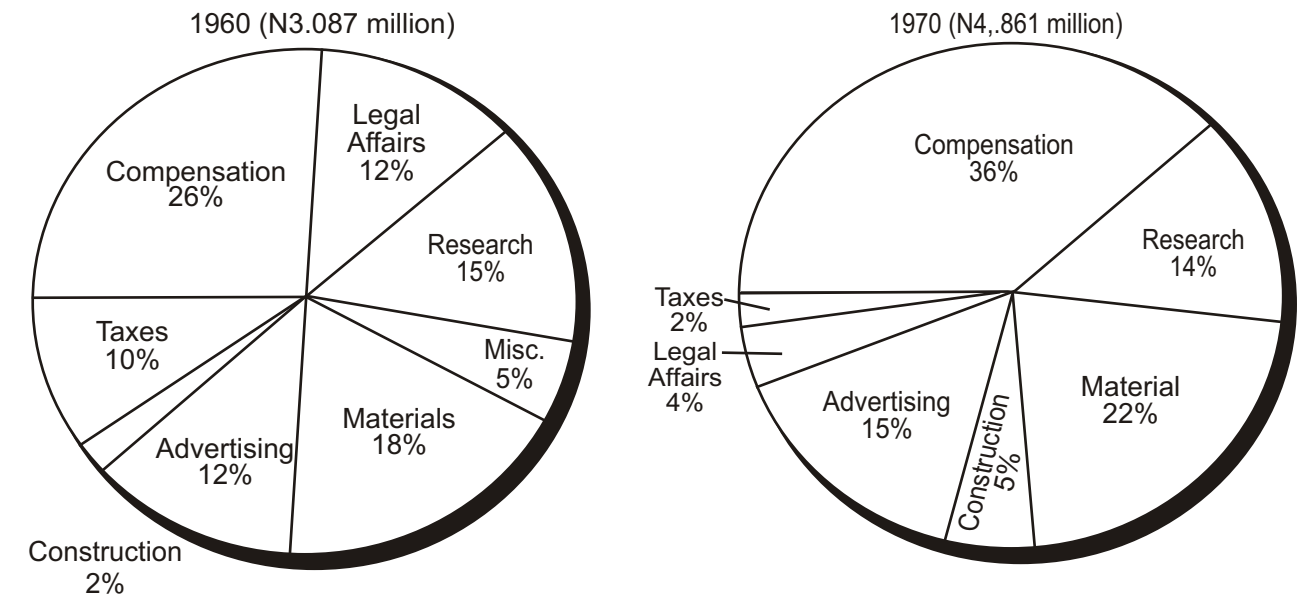
(Total passenger miles in billions)



31. All of the following statement can be inferred from the information provided in the graphs EXCEPT:
- The highest rate of passenger deaths per mile traveled during the period covered by the graphs occurred in 1951.
  - the largest yearly increase in deaths per mile traveled occurred in the period 1954 to 1955.
  - the rate of passenger deaths per mile traveled as approximately the same in both 1954 and 1957
  - total passenger miles traveled approximately tripled between 1951 and 1959
  - the percentage increase in deaths per 100 million passenger miles was constant for 1958, 1959 and 1960.
32. In which year did the longest uninterrupted period of increase in the rate of passenger deaths per mile traveled finally end?
- 1951
  - 1953
  - 1955
  - 1957
  - 1960
33. How many fatalities were reported in the year 1955?
- 20 billion
  - 1.2 billion
  - 240,000
  - 2,000
  - 240
34. The greatest number of fatalities were recorded in which year?
- 1960
  - 1957
  - 1955
  - 1953
  - 1951
35. In which year did the greatest number of passengers travel by air?
- 1960
  - 1955
  - 1953
  - 1951
  - cannot be determined from the information given.

Questions 36 - 38 refer to the following graphs

### EXPENDITURES OF GENERAL INDUSTRIES

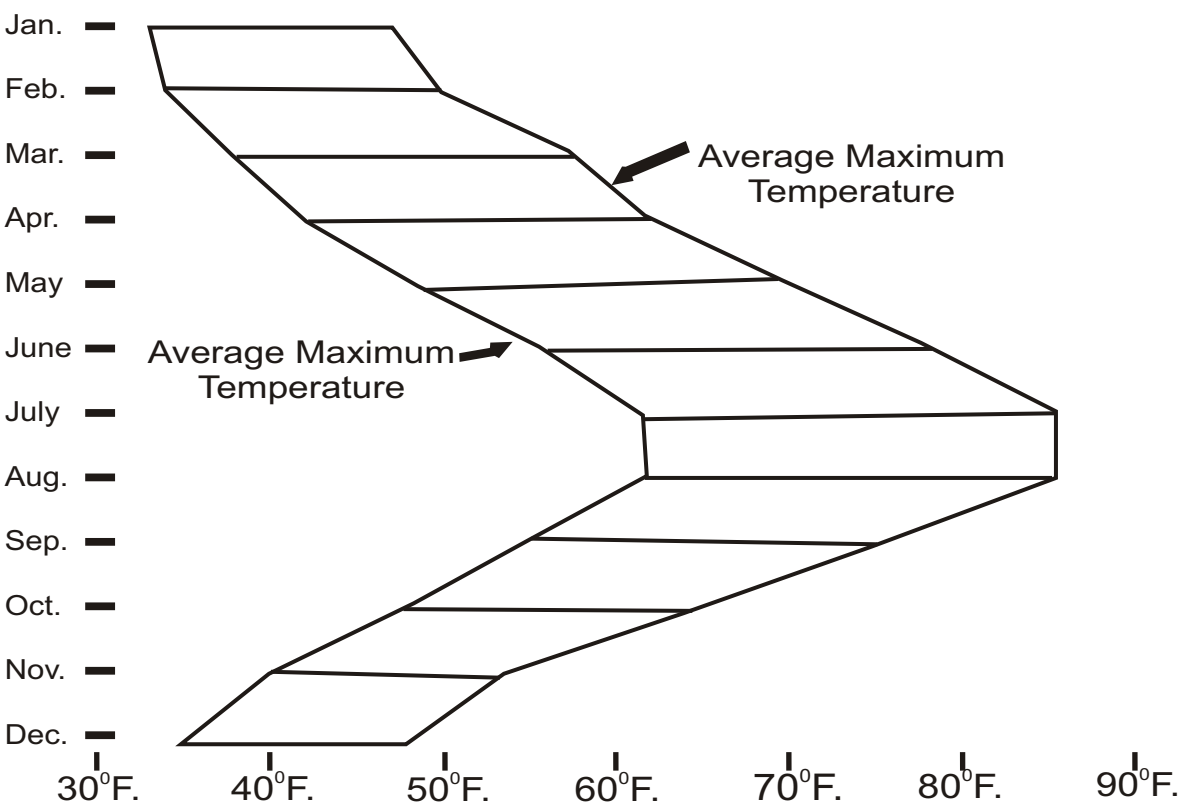


36. The amount spent on materials in 1960 was 120% of the amount spent on
- research in 1960
  - compensation in 1960
  - advertising in 1970
  - materials in 1970
  - legal affairs in 1960
37. The fraction of the total expenditure for 1960 and 1970 spent on compensation was about.
- $\frac{1}{3}$
  - $\frac{1}{4}$
  - $\frac{1}{3}$
  - $\frac{3}{7}$
  - $\frac{1}{2}$
38. The amount spent in 1960 for materials, advertising, and taxes was about the same as
- $\frac{5}{4}$  of the amount spent for compensation in 1960
  - the amount spent for compensation in 1970
  - the amount spent on materials in 1970
  - $\frac{5}{3}$  of the amount spend on advertising in 1970
  - the amount spent on research and construction in 1970



Questions 36 - 38 refer to the following graphs

**AVERAGE MONTHLY TEMPERATURES IN MADRID, SPAIN**

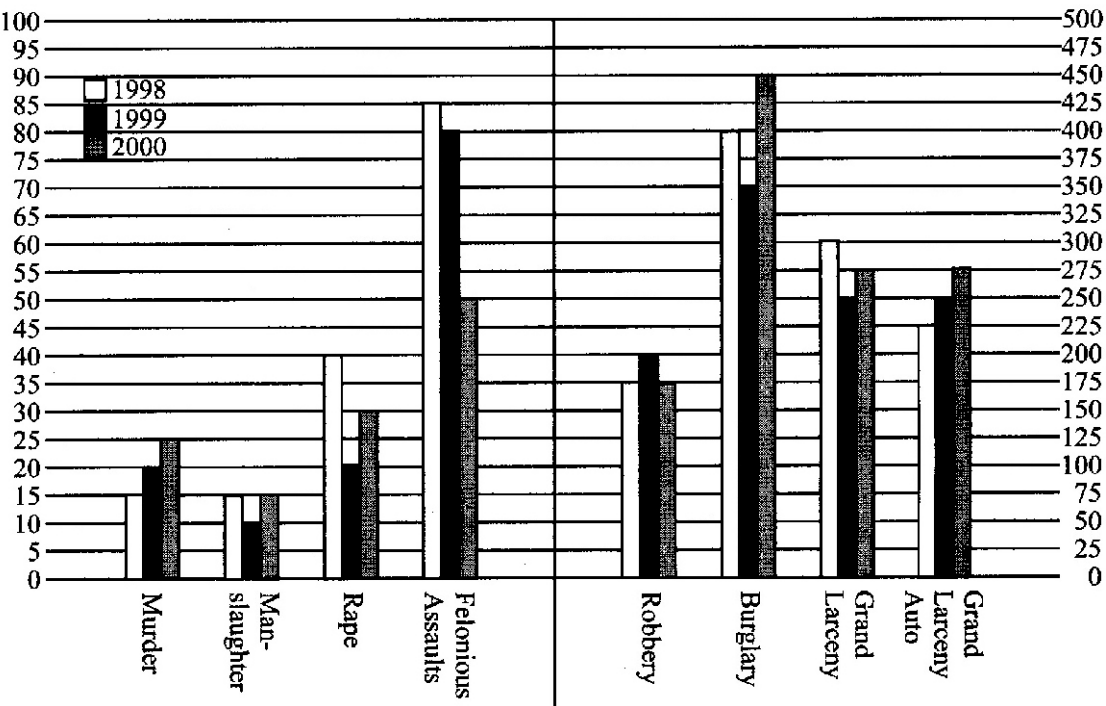


39. Between which of the following months was the greatest change in average maximum temperature?
- (A) January-February
  - (B) February-March
  - (C) March-April
  - (D) October-November
  - (E) November-December

40. If the average maximum temperature of 20 days in September was 80°F, what was the average maximum temperature of the remaining 10 days (in degrees F)?
- (A) 68°F
  - (B) 74°F
  - (C) 76°F
  - (D) 78°F
  - (E) 80°F

Questions 41 - 44 refer to the following graphs

**Yearly Incidence of Major Crimes for Community Z 1998-2000**

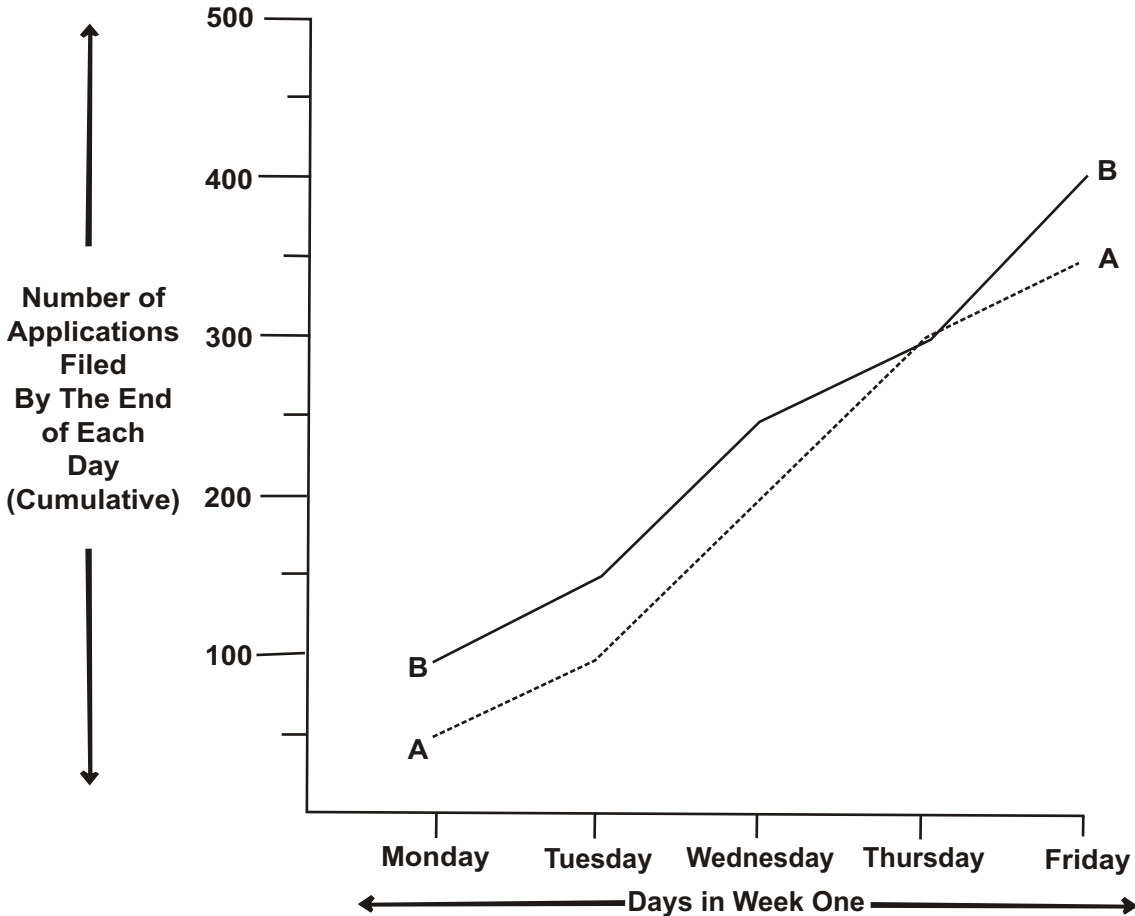


41. In 2000, the incidence of which of the following crimes was greater than in the previous two years?
- (A) grand larceny
  - (B) murder
  - (C) rape
  - (D) robbery
42. If the incidence of burglary in 2001 increase over 2000 by the same number as it had increased in 2000 over 1999, then the average for this crime for the four-year period from 1998 through 2001 would be most nearly.
- (A) 100
  - (B) 400
  - (C) 425
  - (D) 440
43. The above graph indicates that the percentage increase in grand larceny auto from 1999 to 2000 was:
- (A) 5%
  - (B) 10%
  - (C) 15%
  - (D) 20%

44. Which of the following cannot be determined because there is not enough information in the above graph to do so?
- (A) for the three-year period, what percentage of all "Crimes Against the Person" involved murders committed in 1999?
  - (B) for the three-year period, what percentage of all "Major Crimes" was committed in the first six months of 1999?
  - (C) which major crimes followed a pattern of continuing yearly increases for the three-year period?
  - (D) for 2000, what was the ratio of robbery, burglary, and grand larceny crimes?

Questions 45 - 47 refer to the following graphs

In the graph below, the lines “A” and “B” represent the cumulative progress in the work of two file clerks, each of whom was given 500 consecutively numbered applications to file in the proper cabinets over a five-day work week.

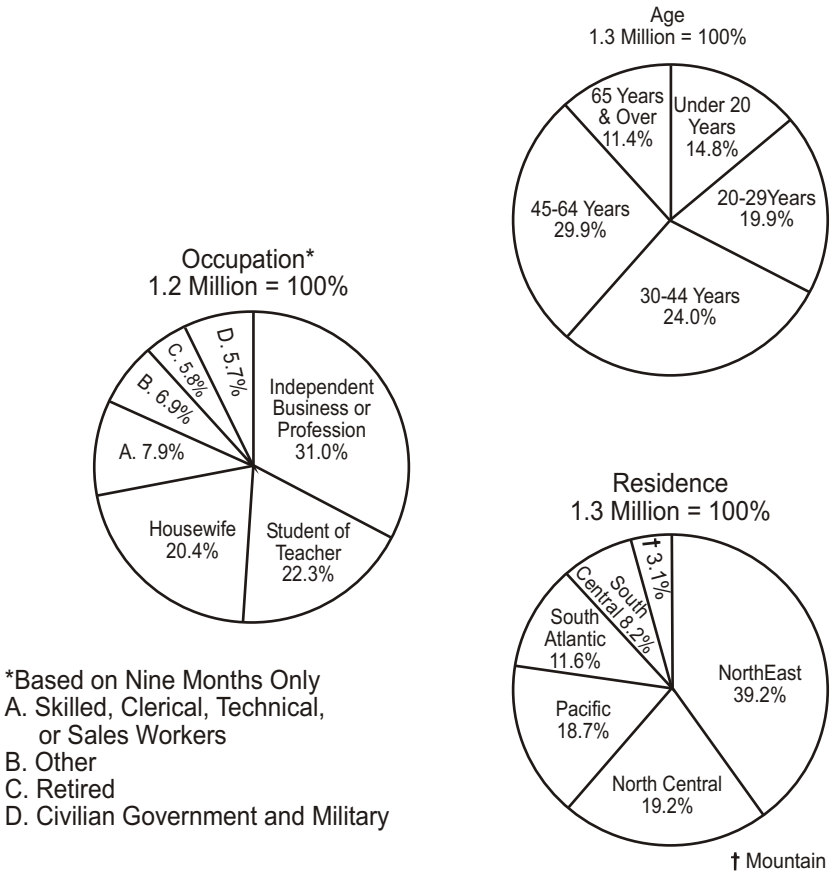


45. The day during which the largest number of applications was filed by both clerks was
- (A) Monday
  - (B) Tuesday
  - (C) Wednesday
  - (D) Friday
46. At the end of the second day, the percentage of applications still to be filed was
- (A) 25%
  - (B) 50%
  - (C) 66%
  - (D) 75%

47. Assuming that the production pattern is the same the following week as the week shown in the chart, the day on which Clerk B will finish this assignment will be
- (A) Monday
  - (B) Tuesday
  - (C) Wednesday
  - (D) Friday

Questions 48 - 51 refer to the following graphs

CHARACTERISTICS OF NIGERIA TRAVELERS ABROAD.....  
BASED ON PASSPORT ISSUED AND RENEWED IN 2000

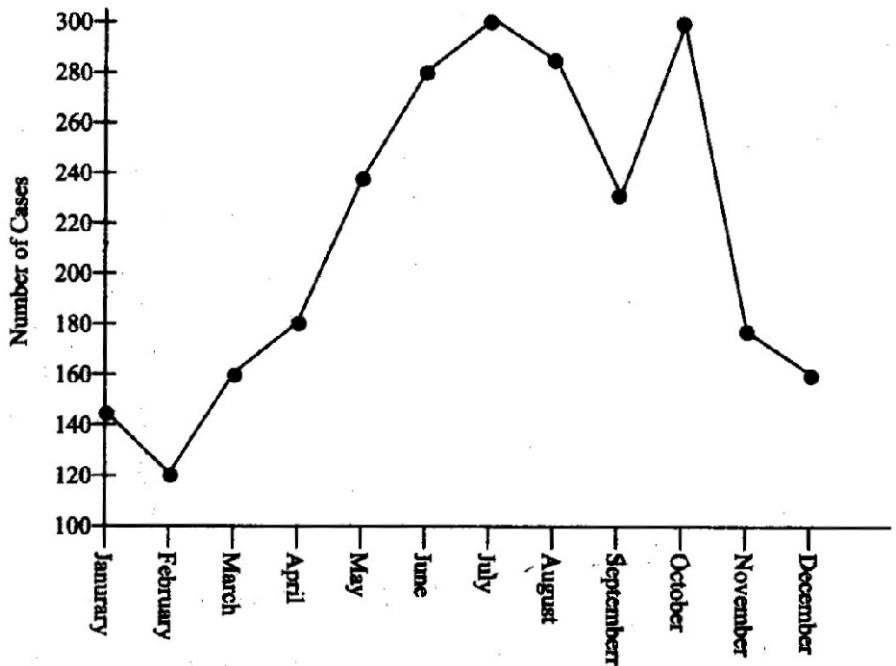


48. Approximately how many persons aged 29 or younger traveled abroad in 2000?
- (A) 175,000
  - (B) 245,000
  - (C) 385,000
  - (D) 450,000
49. Of the people who did not live in the Northeast, approximately what percent came from the North Central states?
- (A) 19.2%
  - (B) 19.9%
  - (C) 26.5%
  - (D) 31.6%

50. The fraction of travelers from the four smallest occupation groups is most nearly equal to the fraction of travelers.
- (A) under age 20, and 65 and over, combined.
  - (B) from the North Central and Mountain states
  - (C) between 45 and 64 years of age
  - (D) from the Housewife and Other categories
51. If the South Central, Mountain and Pacific sections were considered as a single classification, how many degrees would its sector include?
- (A) 30°
  - (B) 67°
  - (C) 108°
  - (D) 120°

Questions 52 - 57 refer to the following graphs

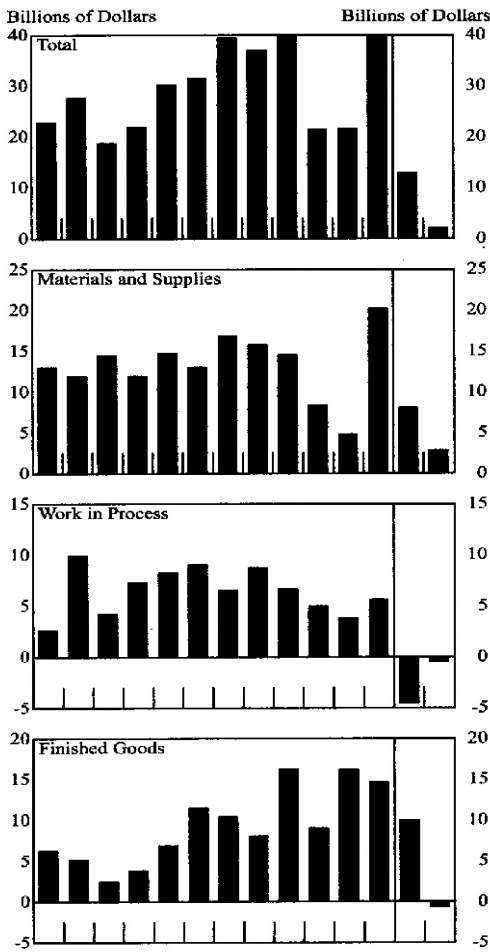
NUMBER OF CASES INVESTIGATED, BUREAU OF WELFARE, 2000



52. In which month were approximately 270 cases investigated?  
(A) May  
(B) June  
(C) July  
(D) August
53. The total number of cases investigated during the first three months of the year was approximately.  
(A) 330  
(B) 350  
(C) 390  
(D) 430
54. Twelve clerks are assigned to enter certain data on index cards. This number of clerks could perform the task in eighteen days. After these clerks have worked on this assignment for six days, 4 more clerks are added to the staff to do this work. Assuming that all the clerks work at the same rate of speed, the entire task, instead of taking eighteen days, will be performed in  
(A) 9 days  
(B) 12 days  
(C) 15 days  
(D) 16 days
55. Smith earns N7.20 per hour for a 40 hour week, with time and half for overtime hours. In a week in which he worked 46 hours, he earned.  
(A) N331.20  
(B) N352.80  
(C) N424.20  
(D) N496.80
56. In the Fahrenheit scale, the temperature that is equivalent to 50° Celsius is  
(A) 122°  
(B) 90°  
(C) 160°  
(D) 87°
57. The circumference of a circle is  $10\pi$ . The area of the same circle is  
(A)  $5\pi$   
(B)  $10\pi$   
(C)  $25\pi$   
(D)  $100\pi$

Questions 58 - 59 refer to the following graphs

CHANGES IN MANUFACTURER'S INVENTORIES BY STAGE OF FABRICATION



58. For how many months are materials and supplies inventories exceeding N15 billion at the same time that finished goods inventories are more than N11 billion? (Months January through December are represented by interval marks on the graph going from left to right).  
(A) one  
(B) two  
(C) three  
(D) four
59. In June 1974, the ratio of finished goods to work in process was approximately.  
(A) 7:16  
(B) 9:16  
(C) 9:7  
(D) 7:9

## ANSWER KEY

1. D	11. A	21. D	31. E	41. B	51. C
2. E	12. C	22. D	32. E	42. D	52. B
3. C	13. E	23. A	33. E	43. B	53. D
4. E	14. E	24. C	34. A	44. B	54. C
5. D	15. D	25. A	35. E	45. C	55. B
6. B	16. C	26. B	36. C	46. D	56. A
7. C	17. E	27. B	37. C	47. A	57. C
8. A	18. B	28. C	38. D	48. D	58. B
9. D	19. C	29. B	39. D	49. D	59. D
10. B	20. C	30. D	40. A	50. A	

## ANSWERS AND EXPLANATIONS

- (D) This question asks about total revenues, so you should refer to the left bar graph. The trickiest part is making sure you correctly extract information from the appropriate bars, in this case for 1984 and 1987. Total revenues for 1984 appear to be N3 million and for 1987 they appear to be about N7.5 million (if you're ever having trouble getting a fix on a quantity on a bar graph, place the edge of a piece of paper along the top of the bar to read the scale between). So the increase is roughly N7.5 billion - N3 million = N4.5 billion.
- (E) The wording is somewhat tricky here, and you have to refer to both bar graphs. First you have to refer to the right bar graph to find the one year in which food-related profits increased over the previous year- the only year in which the unshaded portion of the bar goes up is 1988. Now that you've zeroed in on the year, you must refer to the left bar graph to determine the total revenues for that year, which appear to be about N8.0 billion.
- (C) This is percent question, so first you have to extract the information from the bar graphs. From the right bar graph, the total profits for 1988 appear to be N800 million; from the left bar graph, total revenues for that year appear to be N8.0 billion (i.e N8,000 million). Now you just have to convert the part/whole into a percent:

$$\frac{800 \text{ million}}{8,000 \text{ million}} = \frac{1}{10} = 10\%$$

- (E) First you have to find the year for which revenues from nonfood-related operations surpassed N4.5 billion, so refer to the left bar graph. Finding the correct bar is made more difficult by the fact that you have to deal with the shaded portion, which is not grounded at N0. So you may want to make a ruler from a sheet of paper, using the scale to mark off the length represented by N4.5 billion, and using this to locate the appropriate bar. You should then be able to see that 1987 is the year in questions. The question asks for total profits, so once again refer to the right bar graph and you'll see the profits for that year are around N800 million.
- (D) Finally you have a question that refers to the pie chart. You are asked about revenues from frozen food operations, and the pie chart informs you that frozen foods represent 20 percent of all food-related revenues for 1989. To convert this into an amount you need to locate the amount of food-related revenues for 1989, so once again refer to the left bar graph where you find the food-related revenues in 1989 were about N3 billion, or N3,000 million. 20 percent of N3,000 million is N600 million.

By using all of the techniques discussed above, you will be able to tackle the most difficult Quantitative questions. (You can brush up on all of your math by referring to the Math Reference Appendix in the back of this book). And now that you have the tools to handle the Quantitative section of the GRE, try the following set of practice questions. After that, we'll move on and take a look at the Analytical section of The test.

- (B) The greatest increase occurred from 1978 to 1979. It was:  
1979 Earnings - 1978 Earnings = 1.1 - 0.5 = 0.6 million = N600,000
- (C) This question asks about percent change, so use the "change over" strategy. To make the task Easier, try to work with the fractions you create directly and avoid changing them to percent.

- (A)  $\frac{1980 - 1979}{1979} = \frac{12 - 10}{10} = \frac{2}{10} = \frac{1}{5}$
- (B)  $\frac{1981 - 1980}{1980} = \frac{9 - 12}{12} = \frac{-3}{12} = \frac{-1}{4}$   
(Decrease)
- (C)  $\frac{1982 - 1981}{1981} = \frac{12 - 9}{9} = \frac{3}{9} = \frac{1}{3}$
- (D)  $\frac{1983 - 1982}{1982} = \frac{14 - 12}{12} = \frac{2}{12} = \frac{1}{6}$
- (E)  $\frac{1984 - 1983}{1983} = \frac{13 - 14}{14} = \frac{-1}{14}$   
(Decrease)
8. (A) Just calculate the average:  
 $10.9 + 1.0 + 1.2 + 1.3 + 1.50 = 5.9$   
 $5 = 1.18 = \text{N}1.180.000$
9. (D) Since this question asks for percent change, use the "change over" strategy  
 $\frac{1985 - 1976}{1976} = \frac{1.5 - 0.3}{0.3} = \frac{1.2}{0.3} = 4 = 400\%$
10. (B) If you try to solve this problem by writing out a calculation for each of the years, you'll run out of time before you can get halfway through. Instead, you should do the math in your head. You can find 10 percent of a number just by moving the decimal point one place to the left. Take 1976, for example. Ten percent of 6 million is 0.6 million, which is larger than 0.3 million, so in that year earnings were not equal To or greater than 10 percent of sales. Work your way quickly through the other years.
11. (A) Turkey received  $\frac{1}{8}$  of 84% or 10.5% of ND or N.105D
12. (C)  $93\% - 72\% = 21\%$   
 $4 = 5.25\%$
13. (E) The graph gives no indication as to the individual distribution of aid.
14. E
15. D
16. C
17. E
18. B
19. C
20. C
21. D
22. D



23. A
24. C
25. A
26. B
27. B
28. C
29. B
30. D Given a total budget of N.30 million and the distribution shown in the pie chart, the question is answered: 35% of N30 minus 20% of N30 = N4,500,000.
31. E
32. E
33. E
34. A
35. E
36. C
37. C
38. D
39. D Observe angle formed by line joining each of the two months indicated. Observe angle of October - November.
40. A According to the chart average for September =  $76^{\circ}\text{F}$ .  
Sum of all 30 days =  $(30)(76^{\circ}) = 2280^{\circ}$   
Sum for 20 days of  $80^{\circ}\text{F} = 1600^{\circ}$   
Difference (sum of remaining 10 days)  
=  $680^{\circ}$   
Average for remaining days =  $68^{\circ}\text{F}$ .
41. The correct answer is (B). The incidence of murder increased from 15 in 1998, to 20 in 1999, to 25 in 2000.





42. The correct answer is (D). The incidence of burglary in 1998 was 400; in 1999 it was 350; and in 2000 it was 450. The increase from 1999 to 2000 was 100. An increase of 100 from 2000 gives 550 in 2001.

The average of 400, 350, 450, and 550 is

$$\frac{400 + 350 + 450 + 550}{4} = \frac{1750}{4} = 437.5$$

So the correct answer is (D), 440.

43. The correct answer is (B). The incidence of grand larceny auto went from 250 in 1999 to 275 in 2000, an increase of 25. The percent increase is

$$\frac{25}{250} = .10 = 10\%$$

44. The correct answer is (B). This graph gives information by year, not month. It is impossible to determine from the graph the percentage of crimes committed during the first six months of any year.

45. The correct answer is (C). For both A and B, the greatest increase in the commutative totals occurred from the end of Tuesday until the end of Wednesday. therefore, the largest number of applications was filed on Wednesday.

46. The correct answer is (D). By the end of Tuesday, A had filed 100 applications and B had filed 150, for a total of 250. This left 750 of the original 1,000 applications.

$$\frac{750}{1000} = .75 = 75\%$$

47. The correct answer is (A). During Week One, Clerk B files 100 applications on Monday, 50 on Tuesday, 100 on Wednesday, 50 on Thursday, and 100 on Friday, for a total of 400. On Monday of Week Two, he will fill numbers 401 to 500.

48. The correct answer is (D).

$$\begin{array}{r} 20 - 29 \text{ yrs.: } 19.9\% \\ \text{Under 20 yrs.: } +14.8\% \\ \hline 34.7\% \end{array}$$

$$34.7\% \times 13 \text{ million} = .4511 \text{ million} = 451,100$$

So the correct answer is (D) 450,000.

49. The correct answer is (D)  $100\% - 39.2\% = 60.8\%$  did not live in Northeast.  $19.2\%$  lived in North Central.

$$\frac{19.2}{60.8} = .316 \text{ approximately}$$

So the correct answer is (D) 31.6%

50. The correct answer is (A) Four of the smallest groups of occupation:  
 $7.9\% + 6.9\% + 5.8\% + 5.7\% = 26.3\%$

Age groups under 20 and 65 and over:

$$14.8\% + 11.4\% = 26.2\%$$

51. The correct answer is (C)
- |                |       |
|----------------|-------|
| South Central: | 8.2%  |
| Mountain:      | 3.1%  |
| Pacific:       | 18.7% |
|                | <hr/> |
|                | 30.0% |

$$30\% \times 360^\circ = 108^\circ$$

52. The correct answer is (B). The dot for June lies between 260 and 280.

53. The correct answer is (D).

January:	145
February:	125
March:	+ 160
	<hr/>
	430

54. The correct answer is (C). The first 12 clerks complete  $\frac{6}{18}$ , or  $\frac{1}{3}$  of the job in 6 days, leaving  $\frac{2}{3}$  of the job to be completed. One clerk would require  $12 \times 18 = 216$  days to complete the job, working alone. Sixteen clerks require  $216 \div 16$ , or  $13\frac{1}{2}$  days for the entire job. But only  $\frac{2}{3}$  of the job remains. To do  $\frac{2}{3}$  of the job, 16 clerks require:

$$\frac{2}{3} \times 13\frac{1}{2} = \frac{2}{3} \times \frac{27}{2}$$

$$= 9 \text{ days}$$

The entire job takes 6 days + 9 days = 15 days.

55. The correct answer is (B). Smith worked  $46 - 40$  hours = 6 hours overtime. For each overtime hour he earned:

$$1\frac{1}{2} \times 7.20 = \text{N}10.80$$

$$\text{Overtime pay: } \text{N}10.80 \times 6 = \text{N}64.80$$

$$\text{Regular pay: } \text{N}7.20 \times 40 = \frac{288.00}{\text{N}352.80}$$

56. The correct answer is (A). The formula for changing Celsius to Fahrenheit is:

$$F = \frac{9}{5}C + 32$$

$$F = \frac{9}{5} \times 50 + 32$$

$$F = 90 + 32 = 122$$

57. The correct answer is (C). If the circumference of a circle is  $10\pi$ , its diameter is 10 and its radius is  $10 \div 2$ , or 5.
- The area of a circle  $= \pi r^2$   
 $= \pi \times 5^2$   
 $= 25\pi$
58. The correct answer is (B). For this graph, it helps to visualize each bar as representing a calendar month. Finished goods inventories are more than N11 billion in June, September, November, and December of 1974. Of those months, materials and supplies inventories are more than N15 billion in September, and December.
- The correct answer is (B), two.
59. The correct answer is (D). In June 1974, finished goods inventories were approximately N7 billion, and work in process inventories were approximately N9 billion. The ratio is 7:9.

**FOR MORE ON THESE YOU CAN:**

- \* Call 08059573412 and enquire for a CD on these topic
- \* Visit our website [www.iecnetwork.com](http://www.iecnetwork.com) and download more questions and answers
- \* Attend our monthly seminar.
- \* Call 08033438062 for lecture arrangement at our office.

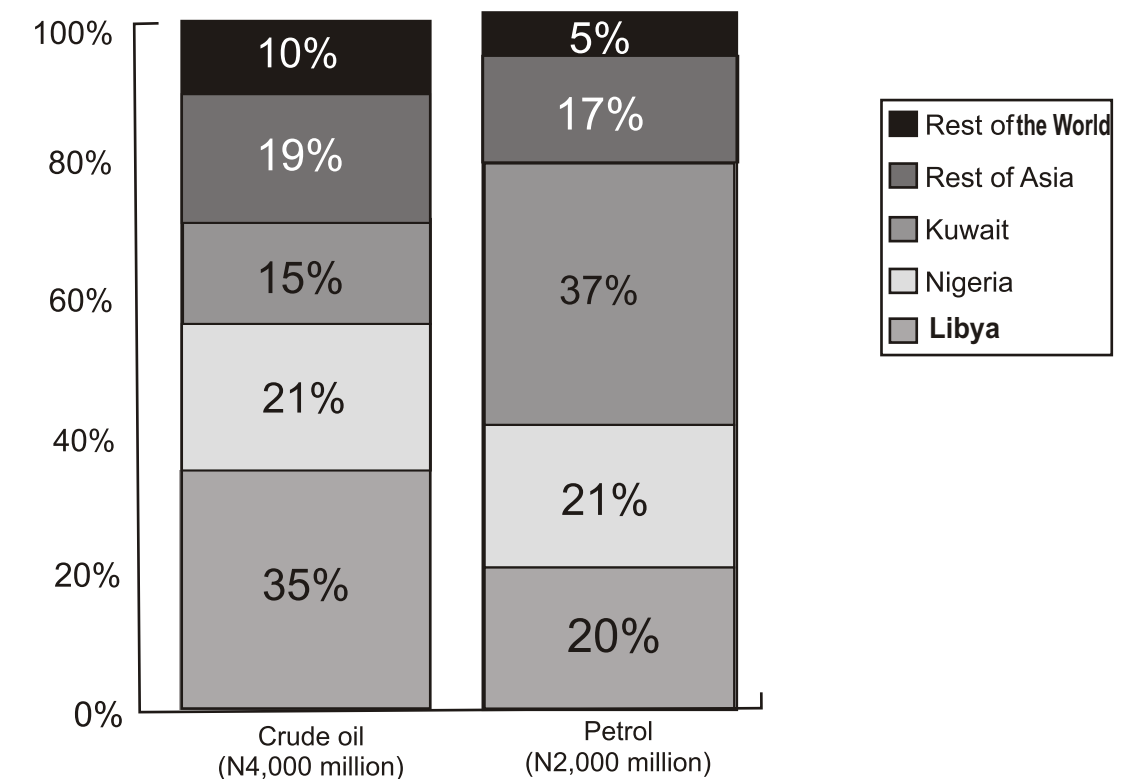
**GRAPHICAL AND DATA ANALYSIS TEST III**

**31 QUESTIONS**  
**20 MINUTES**

**INSTRUCTIONS**

In the test you will be using facts and figures presented in various statistical tables to answer questions designed to assess your ability to evaluate numerical data.

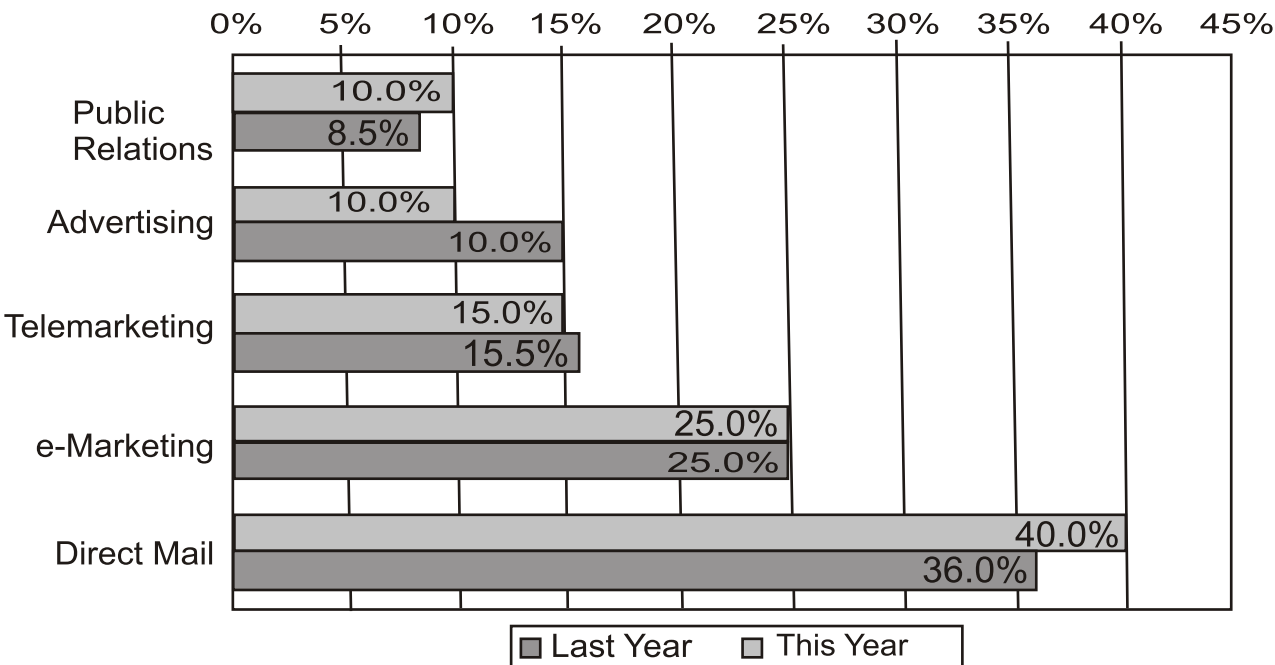
In each question, you are given either five or ten options to choose from. One and only one, of the options is correct in each case. Note that for questions which have 10 options, you may have to fill in more than one circle to indicate your answer. For example, for a question for which you thought the right answer was 'AC' you would fill in both circle A and circle C.

**REGIONAL OIL SALES: TEQUENTAL & PARNOL**

ORDERS PLACED WITH DELTA ENGINEERING

Unit Order	Turbine Blade	Gyroscope	Undercarriage Piston
Texaco	0	15	0
Chevron	18,500	45	200
AP	2,450	6	30
Shell	8,700	21	84
Mobil	13,200	0	145
Price per unit (£)	£425	£21,500	£295
EXCHANGE RATES FOR STERLING ( )			
One Pound (£) =	1 - January	1 - April	1 - July
Euro	1.50	1.52	1.58
Japanese Yen	191.47	175.81	163.33
US Dollar	1.65	1.61	1.60

RECHARGE CARD MARKETING CHART



Graduate & Non - Graduate  
Employment Profiles for FCT ABUJA

Employment Sector	Graduate	Non-graduate
Business Services	735,000	108,000
Public Administration	525,000	108,000
Education	294,000	117,000
Telecommunication	315,000	162,000
Self-employed	210,000	198,000
Other	21,000	207,000
Total	2,100,000	900,000

IEC RETAIL OUTLETS: WEEKLY SALES BY LOCATION

Location	Under N50,000	N50,000 to N99,999	N100,00 to N149,999	N150,00 to N199,99	N200,000 and over	Totals
City	3,316	2,843	1,896	948	474	9,475
Mall	158	316	633	949	1,107	3,163
Totals	3,474	3,159	2,258	1,896	1,581	12,638

SONY ENTERPRISES FINANCIAL INFORMATION

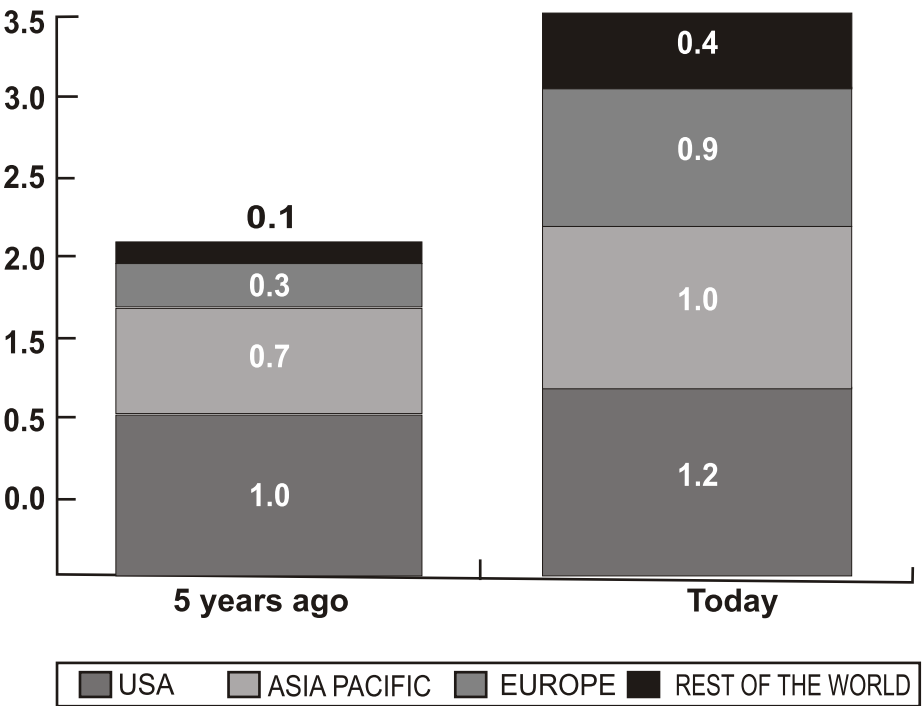
	Year 1	Year 2	Year 3
Turnover (Nm*)	11.4	10.6	8.5
Income (Nm*)	9.2	3.1	1.1
Assets (Nm*)	42.3	28.7	32.6
Debt (Nm*)	9.7	6.5	17.8
Profit Margin (%)	80.70	29.25	12.94
Share Price (kobo)	108.0	85.6	56.6
Number of Shares			
(m*)	50	50	50

\*m = millions

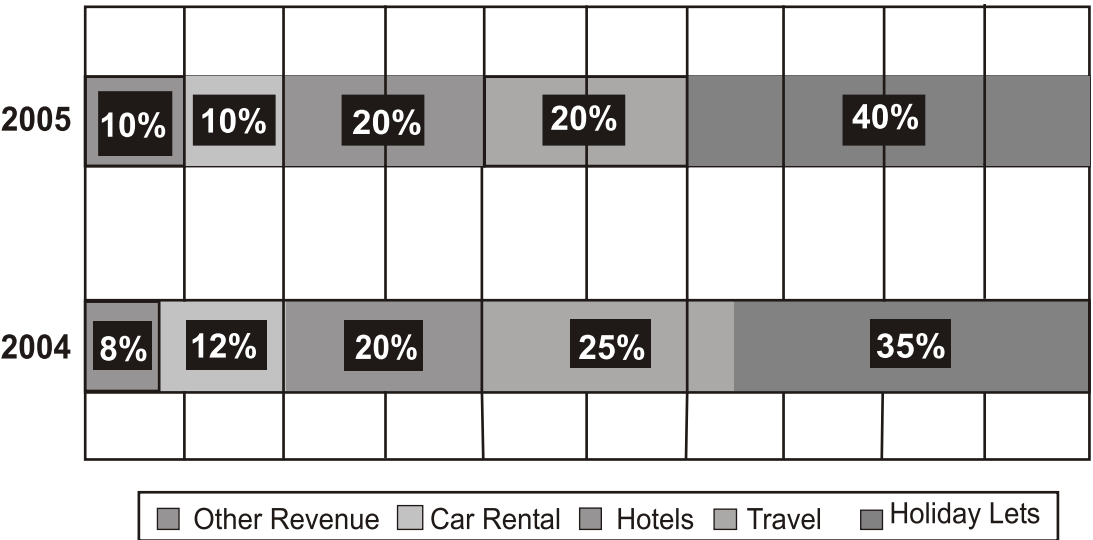
DEMOGRAPHIC AND INFRASTRUCTURE INFORMATION

	Accra	Lome	Lagos
Population (m)	59.4	168	1,023
GNP (in USA \$m)	1,129,000	485,00	265,000
Economically Active Pop. (%)	49.8	42.7	37.3
Urban: Rural Pop. (%)	90.6 : 9.4	74.3 : 25.7	26.1 : 73.9
Telephone (m)	29.20	12.30	8.44
Vehicle - Cars (m)	21.2	15.3	2.5
Vehicles-Trucks & Buses (m)	3.1	1.7	1.5
Total Road Length (m of km)	0.38	1.7	2.1
m = millions			

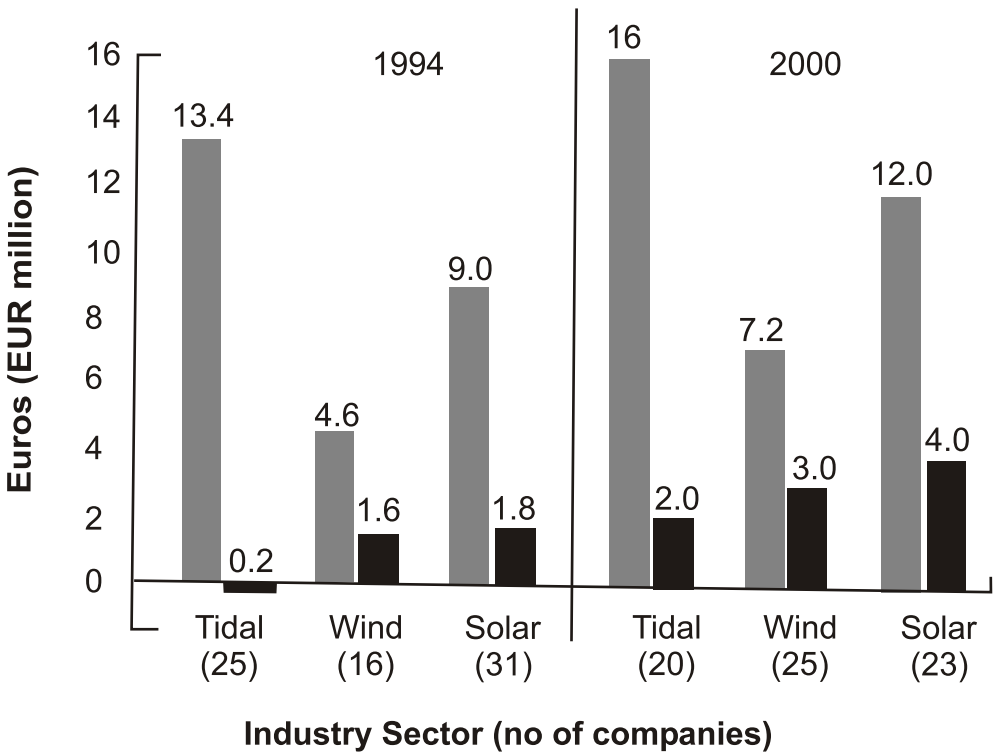
ANNUAL AIR TRAFFIC  
(1,000 million of passengers)



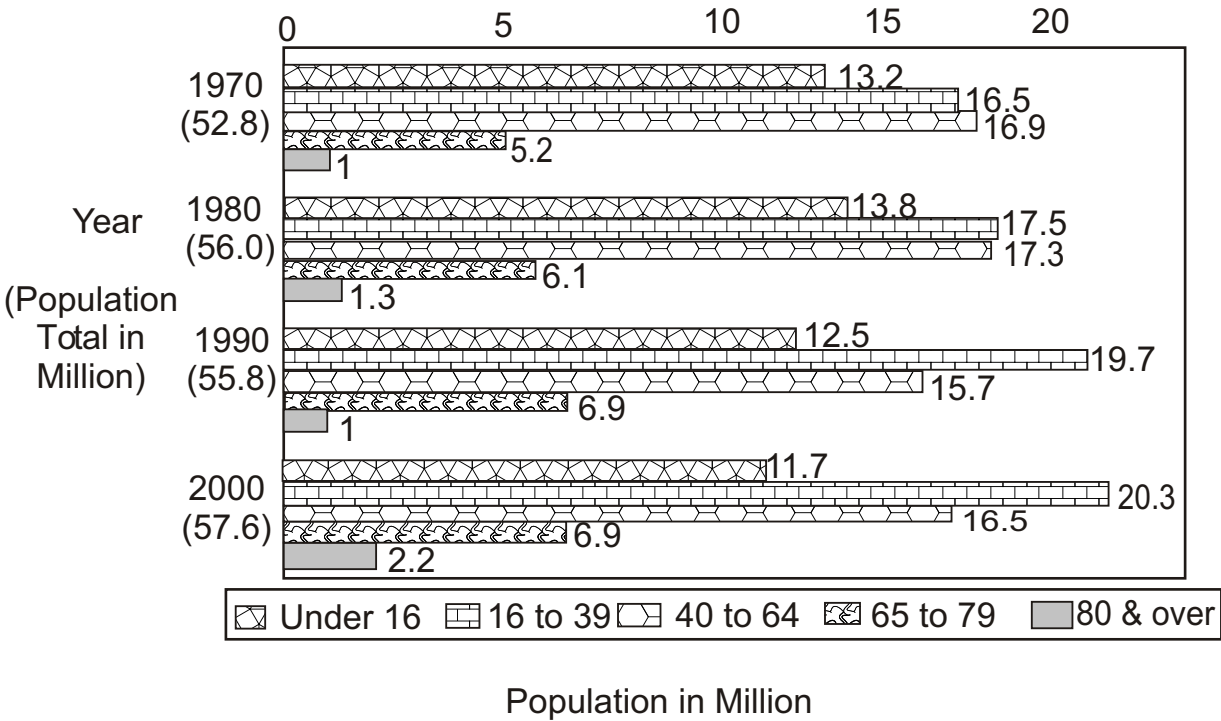
SKG Leisure Revenue Comparisons



Greenco Subsidiaries



POPULATION AGE DISTRIBUTIONS BY YEAR



Operating Performance for International Paper Goods (IPG)

(EUR million)	1995	1996	1997	1998	1999	2000
Net sales	1,600	2,158	2,568	2,375	2,508	2,709
Cost of goods sold	1,089	1,487	1,661	1,508	1,568	1,716
Sales margin	511	671	886	867	922	993
Fixed costs	289	411	582	578	592	596
Operating cash flow	222	260	304	289	331	397

Production Costs by Product Line and Month

		Jun	Jul	Aug	Sept.	Oct.	Average cost per unit of production (\$)
Line A	Units Produced*	201	433	505	774	775	\$0.62
	Machines Employed	25	26	37	38	40	
Line B	Units Produced*	308	608	677	722	895	\$0.54
	Machines Employed	35	87	92	93	106	
Line C	units Produced*	214	336	935	990	1,109	\$0.45
	Machines Employed	50	87	165	184	187	
* in 000's							

Today's Exchange Rates\* for the Bhutanese Ngultrum

	Closing Point	Today's High	Today's Low	Change on Day	World Bank Index
Sterling	70.72	71.06	68.70	+0.42	68.00
US Dollar	43.52	45.16	43.52	-0.08	43.14
Euro	46.61	48.57	44.93	+1.68	44.28
Yen	0.40	0.43	0.38	-0.03	0.38

\*Rates are number of Ngultrum per stated currency

## RENTAL YIELDS

Rental		Industrial	Commercial	Private
A	M <sup>2</sup> for rent occupancy Value per m <sup>2</sup>	483 70% 525	482 80% 840	664 90% 1,680
B	m <sup>2</sup> for rent occupancy Value per m <sup>2</sup>	457 63% 683	545 72% 1,892	718 81% 2,184
C	m <sup>2</sup> for rent occupancy Value per m <sup>2</sup>	444 56% 735	600 64% 1,176	965 72% 2,352
D	m <sup>2</sup> for rent occupancy Value per m <sup>2</sup>	442 42% 788	679 48% 1,260	1,095 54% 2,520
E	m <sup>2</sup> for rent occupancy Value per m <sup>2</sup>	439 49% 849	782 56% 1,344	1,213 63% 2,688

### Question 1

The amount of Crude oil sales in the Rest of the World is forecast to rise at 20% per year, while the amount of Crude oil sales in Kuwait is expected to remain constant. How long will it take for Crude sales in the Rest of the world to exceed those in Kuwait?

- A 1 years      B 2 years      C 3 years      D 4 years      E 5 years

### Question 2

Approximately what percentage of all Crude oil and petrol sales (in N) is in the Kuwait market?

- A 20%      B 22%      C 24%      D 26%      E none of these

### Question 3

If AP agreed the price of their Gyroscope order in Sterling on 1 January and paid on 1 April, what would be the cost difference, in Japanese Yen, if paid on 1 April rather than 1 January?

- A 22,676,490      B 2,020,140      C 1,120,080      D 22,020,140      E 22,676,490

### Question 4

If sales from e-marketing grew by 50% this year compared to last year, and e-Marketing totalled 60,000 sales last year, how many sales did Telemarketing generate this year?

- A 30,600      B 54,000      C 55,800      D 90,000      E 129,600

### Question 5

If Chevron increased their Unit Order of Turbine Blades by 7%, approximately how much would they need to pay for Turbine Blades?

- A N3,580,000      B N5,102,000      C 7,348,000      D N8,413,000      E N13,226,00

### Question 6

Approximately what percentage of graduates and non-graduates are self-employed?

- A 10%      B 14%      C 17%      D 22%      E 23%



**Question 7**

What is the approximate percentage of total weekly sales under N100,000?

- |    |     |     |     |     |
|----|-----|-----|-----|-----|
| A  | B   | C   | D   | E   |
| 1% | 26% | 27% | 52% | 72% |

**Question 8**

What would the Turnover be in Year 4 if it continued to decrease at the same rate as between Year 2 and Year 3?

- |       |       |       |       |       |
|-------|-------|-------|-------|-------|
| A     | B     | C     | D     | E     |
| N6.1m | N6.4m | N6.8m | N7.1m | N8.5m |

**Question 9**

If 90% of cars in Lagos are owned by urban dwellers, what percentage of urban dwellers own cars (assuming a maximum of one car per person)?

- |       |       |       |     |     |
|-------|-------|-------|-----|-----|
| A     | B     | C     | D   | E   |
| 0.22% | 0.84% | 1.28% | 22% | 60% |

**Question 10**

What is the approximate ratio of Malls to the total number of Outlets?

- |     |     |     |     |       |
|-----|-----|-----|-----|-------|
| A   | B   | C   | D   | E     |
| 1:4 | 1:2 | 2:1 | 3:1 | 4:10. |

**Question 11**

If the number of graduates employed in Telecommunication is forecast to decline by 20% year-on-year while the number of non-graduates is forecast to remain the same, how many years will it take for non-graduate employees to out number graduate employees in Telecommunication ?

- |   |   |   |   |   |
|---|---|---|---|---|
| A | B | C | D | E |
| 1 | 2 | 3 | 4 | 5 |

**Question 12**

What is the approximate ratio of the number of telephone in Lagos to the number of telephone in Accra?

- |     |     |     |     |     |
|-----|-----|-----|-----|-----|
| A   | B   | C   | D   | E   |
| 1:5 | 2:5 | 2:7 | 4:9 | 1;2 |

**Question 13**

If the price of Turbine Blades increase to N435, what will the percentage increase be on the cost of the Shell Turbine Blade order?

- |       |       |       |       |        |
|-------|-------|-------|-------|--------|
| A     | B     | C     | D     | E      |
| 0.01% | 0.02% | 1.20% | 2.35% | 12.18% |

**Question 14**

If the number of graduates employed in Education remains the same while the number of non-graduates increase by 15% per year, how many years will it takes for the number of non-graduates to exceed the number of graduates employ in education?

- |   |   |   |   |   |
|---|---|---|---|---|
| A | B | C | D | E |
| 3 | 4 | 5 | 6 | 7 |

**Question 15**

If Other Revenue grew by 50% to 1.26m in 2005, approximately how much revenue did Holiday Letting generate in 2004?

- |             |             |             |             |             |
|-------------|-------------|-------------|-------------|-------------|
| A           | B           | C           | D           | E           |
| 1.05m Euros | 1.26m Euros | 2.52m Euros | 2.63m Euros | 3.68m Euros |

**Question 16**

What was the average annual percentage growth in Net Sales for 1999 and 2000?

- |      |      |      |      |      |
|------|------|------|------|------|
| A    | B    | C    | D    | E    |
| 3.2% | 4.4% | 5.6% | 6.8% | 7.9% |

**Question 17**

In 1990, how many people were aged between 16 and 79?

- |       |       |       |       |       |
|-------|-------|-------|-------|-------|
| A     | B     | C     | D     | E     |
| 35.4m | 42.3m | 43.3m | 45.9m | 49.5m |

**Question 18**

The average distance flown per passenger departing within Europe 5 years ago was 1,000km. Today this figure has decreased by 20%. By how many percent has the total distance travelled by flights departing in Europe changed today?

- |              |              |           |               |               |
|--------------|--------------|-----------|---------------|---------------|
| A            | B            | C         | D             | E             |
| 30% decrease | 15% decrease | no change | 120% increase | 140% increase |



Question 19

What was the average cost per machine employed across all three lines in June?

- A\$875
- B\$3,520
- C\$3,537
- D\$4,752
- E\$4,985

Question 20

What was the approximate average production cost per machine employed by Line B in October?

- A\$57
- B\$4,559
- C\$8,443
- D\$483,300
- E\$51,229,800

Question 21

Which private rental area generated the highest total revenue?

- A  
Area A
- B  
Area B
- C  
Area C
- D  
Area D
- E  
Area E

Question 22

If the exchange rate for Yen decreases by the same amount of Ngultrums tomorrow as it did today, how many Ngultrums would 30,000 Yen buy?

- A10,700
- B10,800
- C10,900
- D11,000
- E11,100

Question 23

If the increase in global passenger air traffic continues at the current rate, approximately how many annual air passengers (millions) will there be in 5 years time?

- A5,830m
- B53,900m
- C58,300m
- D539,000m
- E  
none of these

Question 24

What is the percentage increase in global passenger air traffic over the last 5 years?

- A37%
- B47%
- C57%
- D67%
- E  
none of these

Question 25

If the revenue for Car Rental in 2004 was half that for Hotels in 2005 when Holiday Lettings accounted for N5.04m what was the revenue from Hotels in 2004?

- A0.84m Euros
- B1.05m Euros
- C1.26m Euros
- D2.10m Euros
- E2.52m Euros

Question 26

Expressing Sales Margin as a percentage of Net Sales, what was the change in this percentage from 1997 to 1998?

- A2% drop
- B1% drop
- CNo change
- D1% rise
- E2% rise

Question 27

In 1980, what percentage of the population was 65 or older?

- A11.7%
- B12.5%
- C13.2%
- D14.0%
- E14.8%

Question 28

What was the difference in average cost per machine employed between Line A and Line C in August?

- A\$22
- B\$51
- C\$5,912
- D\$430,000
- E\$107,650

Question 29

How many more Ngultrums could 20,000 Euros buy at peak exchange rate than at Closing Point?

- A29,300
- B37,300
- C39,200
- D72,800
- E85,800

Question 30

Approximately what percentage of the total commercial revenue across all rental areas did area A contribute?

- A4%
- B10%
- C12%
- D15%
- E17%

Question 31

How many more Euros Operating Profit did Greenco generate per Tidal company in 2000 than in 1994?

- A  
EUR 54,000
- B  
EUR 108,000
- C  
EUR 216,000
- D  
EUR 432,000
- E  
None of these

## ANSWER KEY

1. C	11. C	21. E	31. E
2. B	12. C	22. E	
3. B	13. D	23. A	
4. B	14. E	24. D	
5. D	15. E	25. D	
6. B	16. D	26. E	
7. D	17. B	27. C	
8. C	18. E	28. C	
9. B	19. B	29. C	
10. B	20. B	30. B	

**FOR MORE ON THESE YOU CAN:**

- \* Call 08059573412 and enquire for a CD on these topic
- \* Visit our website [www.iecnetwork.com](http://www.iecnetwork.com) and download more questions and answers
- \* Attend our monthly seminar.
- \* Call 08033438062 for lecture arrangement at our office.

## ANSWERS AND EXPLANATIONS

1. C

$$\text{Rest of the world} = \frac{10}{100} \times \$4,000\text{m} = \$400\text{m}$$

$$\text{Kuwait of the world} = \frac{15}{100} \times \$4,000\text{m} = \$600\text{m}$$

$$\text{Year 1 20\% increase in the rest of the world} = \frac{120}{100} \times 400 = 480$$

$$\text{Year 2 20\% increase in the rest of the world} = \frac{120}{100} \times 480 = 576$$

$$\text{Year 3 20\% increase in the rest of the world} = \frac{120}{100} \times 576 = 691.2$$

$$\therefore 691.2 > 600$$

Answer = 3 years

2. B

$$\text{Kuwait Crude oil} = \frac{15}{100} \times 400\text{m} = 600\text{m}$$

$$\text{Kuwait Petrol} = \frac{37}{100} \times 2000\text{m} = 740\text{m}$$

$$\text{Total} = 600\text{m} + 740\text{m} = 1340\text{m}$$

$$\therefore \frac{1340}{6000} \times 100 = 22.3\% \quad 22\%$$

3. B

$$\text{Cost in £ sterling} = 6 \times 21,500 = 129,000$$

$$\text{Conversion to Japanese year in Jan 1} = 129,000 \times 191.47 = 24,699,630$$

$$\text{Conversion to Japanese year in April 1} = 129,000 \times 175.81 = 22,679,490$$

$$\text{Difference} = 2,020,140$$

4. B  
Last year sales for E-marketing = 60,000  
This year =  $\frac{150}{100} \times 60,000$   
= 90,000
- ∴ 100% of total sales =  $\frac{100}{25} \times 90,000$   
= 3 60,000 this the total sales.
- Telemarketing sales this year =  $\frac{15}{100} \times 360,000$   
= 54,000
5. D  
7% increase in unit order =  $\frac{107}{100} \times 18,500$   
= 19,795
- = 19,795 x 425  
= 8,412,875  
8.413,000
6. B  
Self employed Graduates = 210,000  
Self employed Non-Graduates = 198,000  
Total = 408,000
- Total number of the students = 2,100,000 + 900,000  
= 3,000,000
- ∴  $\frac{408,000}{3,000,000} \times 100$   
= 13.6  
= 14%
7. D  
Total sales = 3,474 + 3,159 = 6,633  
Percentage =  $\frac{6,633}{12,638} \times 100$   
= 52%
8. C  
Difference in Year 2 turnover to year 3  
= 10.6 - 8.5 = 2.1
- Percentage decrease =  $\frac{2.1}{10.6} \times 100$   
= 19.81%
- Decrease at this rate for year 4 =  $\frac{100 - 19.81}{100} \times 8.5$   
= N6.8m



9. B  
Population of Urban dwellers  
=  $\frac{26.1}{100} \times 1023$   
= 267.003
- 90% of cars =  $\frac{90}{100} \times 2.5$   
= 2.25
- Since one car per person, therefore  
=  $\frac{2.25}{267.003} \times 100$   
= 0.84%
10. B  
Total no of mails = 3,163  
Total no of outlets = 12,638
- Rate =  $\frac{3,163}{12,638}$   
= 1:4
11. C  
Year 1 20% decline =  $\frac{80}{100} \times 315,000$  = 252,000
- Year 2 20% decline =  $\frac{80}{100} \times 252,000$  = 201,600
- Year 3 20% decline =  $\frac{80}{100} \times 201,600$  = 161,200
- ∴ 161,200 < 162,000  
= 3 years.
12. C  
Number of telephones in Lagos = 8.44  
Number of telephones in Accra = 29.20  
ratio = 8.44 : 29.20  
Approximately 7 : 2
13. D  
Shell order = 8,700  
Total cost = 8,700 x 425 = 3,697,500  
Increment = 8,700 x 435 = 3,784,500
- Difference = 87,000
- Percentage increase =  $\frac{87,000}{3,697,500} \times 100$   
= 2.35%



14. E  
 Year 1 15% increase  $= \frac{115}{100} \times 117,000$   
 $= 134,500$   
 Year 2 15% increase  $= \frac{115}{100} \times 134,500$   
 $= 154,732.5$   
 Do this to the 6th year  
 Year 7 15% increase  $\frac{115}{100} \times 270.20$   
 $= 310,787.5$   
 $310,787.5 > 294,000$   
 $\therefore$  Answer = 7 years
15. E  
 Let the other revenue generated in 2004 = Nx m  
 $\therefore$  150% of Nx m = N1.26 m  
 $X = \frac{N1.26m}{15}$   
 $X = N0.84m$   
 8% = N0.84 m (Other revenue generated in 2004)  
 35% = ? (Holiday letting generated in 2004)  
 $? = \frac{N0.84m \times 35}{8} = N3.675m$   
 Approx. N3.68 m
16. D  
 % growth in net sales in 1999  
 $= \frac{N2508m - N2375m}{N2375m} \times 100\% = 5.6\%$   
 % growth in net sales in 2000  
 $= \frac{N2709m - N2508m}{N2508m} \times 100\%$   
 Average  $= \frac{5.6\% + 8\%}{2} = 6.8\%$
17. B  
 Population of people between 16 and 79 in 1990  
 $= (19.7 + 15.7 + 6.9)m$   
 $= 42.3m$
18. E  
 300m passengers departed Europe 5 yrs ago  
 Total distance for 300m passengers =  $300m \times 1000km$   
 $= 300,000km$   
 20% decrease in distance traveled today = 80% of 1000km  
 $= 800km$

- 900m passengers departed Europe today  
 $\therefore$  Total distance for 900m passengers today =  $900m \times 800km$   
 $= 720,000km$   
 $\% \text{ increase} = \frac{720,000km - 300,000km}{300,000km} \times 100\%$   
 $= 140\%$
19. B  
 Cost of production for each line in June  
 Line A =  $201,000 \times N0.62 = N124,620$   
 Line B =  $308,000 \times N0.54 = N166,320$   
 Line C =  $214,000 \times N0.45 = N96,300$   
 Total N387,420  
 Average  $= \frac{N387,420}{110}$
20. B  
 $\frac{\text{Unit produced} \times \text{cost per unit}}{\text{Machine employed}}$   
 $\frac{895,000 \times N0.54}{106} = N4,559$
21. E  
 Rental for each Area = % occupancy x value  
 Area A = 90% of 664 x 1680 = 1,003,968  
 Area B = 81% of 710 x 2184 = 1,256,018  
 Area C = 72% of 965 x 2352 = 1,634,169  
 Area D = 54% of 1095 x 2520 = 1,490,076  
 Area E = 63% of 1213 x 2688 = 2,054,142  
 Highest Area is E
22. E  
 Yen decreased by 0.03 as at today  
 i.e (0.43 - 0.4)  
 $\therefore$  New rate =  $0.4 - 0.03 = 0.37$   
 $= 0.37 \times 30,000$   
 $= 11,100$
23. A  
 % increase from 5 years ago to today  
 $= \frac{3,500m - 2,100m}{2,100m} \times 100\%$   
 $= 66.7\%$   
 In 5 years time, there will be 66.7% increase  
 $\therefore$  166.7% of 3,500m = 5,834.5m  
 Approx. = 5,830m

24. D  
 $\% \text{ increase} = \frac{\text{difference}}{\text{original}} \times 100\%$   
 $= \frac{3,500\text{m} - 2,100\text{m}}{2,100\text{m}} \times 100\%$   
 $= 66.7\%$   
 Approx. 67%
25. D  
 If 40% (Holiday lets) = N5.04m  
 :- 20% (Hotels) =  $\frac{N5.04\text{m}}{2}$   
 $= N2.52\text{m}$   
  
 :- car rentals in 2004 = 1/2 of N2.52m  
 $= N1.26\text{m}$   
 12% (car rental) = N1.26m  
 20% (Hotel) = ?  
 ? =  $N1.26\text{m} \times \frac{20}{12}$   
 $= N2.1\text{m}$
26. E  
 $\% \text{ of sales margin to Net sales in 1997}$   
 $= \frac{886}{2568} \times 100\%$   
 $= 34.5\%$   
  
 $\% \text{ of sales margin to net sales in 1998}$   
 $= \frac{867}{2375} \times 100\%$   
 $= 36.5\%$   
 Net effect = 2% increase
27. C  
 Total population in 1980  
 $= (13.8 + 17.5 + 17.3 + 6.1 + 1.3)\text{m}$   
 $= 56\text{m}$   
  
 Population aged 65 or older =  $(6.1 + 1.3)\text{m}$   
 $= 7.4\text{m}$   
 $\% = \frac{7.4\text{m}}{56\text{m}} \times 100\%$   
 $= 13.2\%$

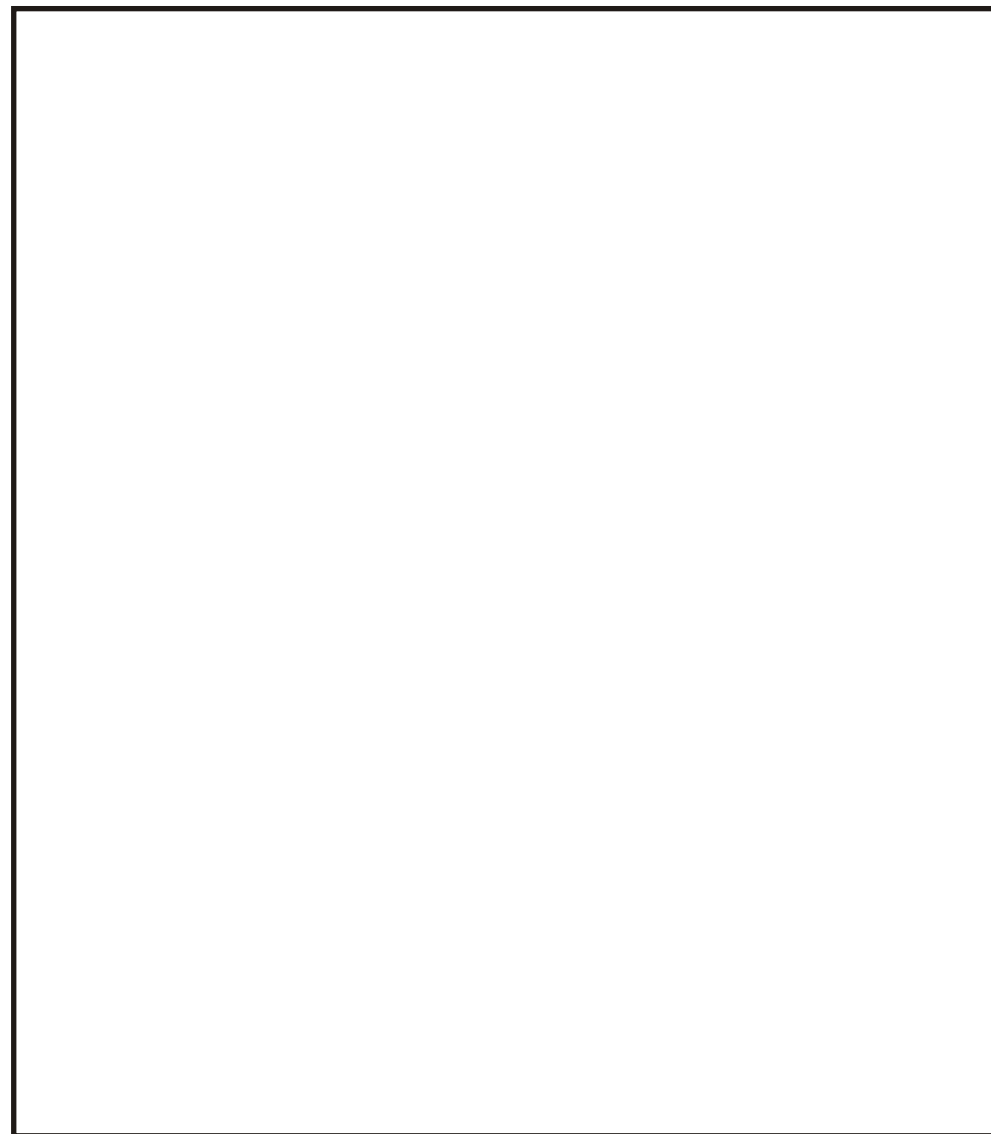
28. C  
 Line A =  $\frac{505,000}{37} \times N0.62$   
 $= N8462$   
 Line B =  $\frac{935,000}{165} \times N0.45$   
 $= N2550$   
 Difference =  $N8462 - N2550$   
 $= N5912$
29. C  
 20,000 Euros at peak rate =  $20,000 \times 48.57$   
 $= 971,400$   
 20,000 Euros at closing rate =  $20,000 \times 46.61$   
 $= 932,200$   
 Difference =  $971,400 - 932,200$   
 $= 39,200$
30. D  
 Commercial revenue for each area  
 Area A =  $80\% \text{ of } 482 \times 840 = 323,904$   
 Area B =  $72\% \text{ of } 545 \times 1892 = 742,420$   
 Area C =  $64\% \text{ of } 600 \times 1176 = 451,584$   
 Area D =  $48\% \text{ of } 679 \times 1260 = 410,659$   
 Area E =  $56\% \text{ of } 782 \times 1344 = 588,564$   
**Total = 2,106,547**  
  
 $\% \text{ of Area A's contribution}$   
 $= \frac{323,904}{2,106,547} \times 100\%$   
 $= 15.3\%$   
 Approx. 15%
31. E  
 2000  
 Profit per tidal company =  $\frac{(16 + 2.0)\text{m}}{20}$   
 $= 0.9\text{m}$   
  
 19994  
 Profit per tidal company =  $\frac{(13.4 - 0.2)\text{m}}{25}$   
 $= 0.528\text{m}$   
  
 Difference =  $900,000 - 528,000$   
 $= 372,000$   
  
 None of the above options



# PART FOUR

## IQ AND SPATIAL ORIENTATION TESTS

Relevant for all company tests. Study this section carefully.



IEC MONTHLY SEMINAR

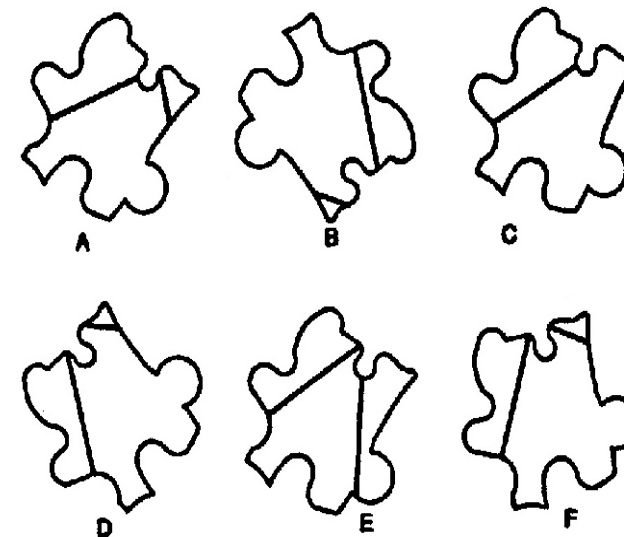
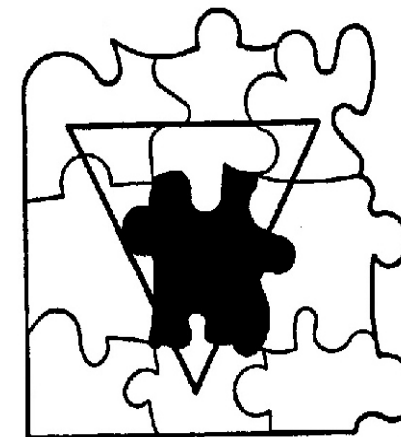
# IQ TEST

75 QUESTIONS  
20 MINUTES

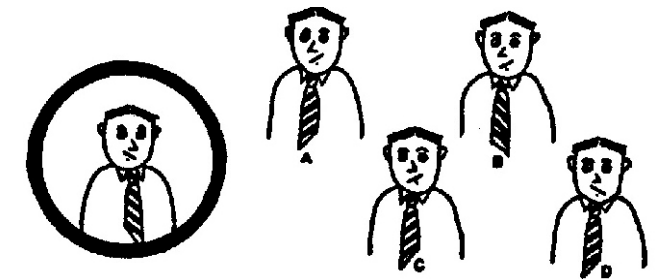
### DIRECTIONS

You have 20 minutes to answer the 75 questions. Do not exceed this time limit. Answer all questions. If a question seems to have more than one answer or not correct at all, what you consider to be the best of the choices give. These questions are purposely designed to test ability to think and reason.

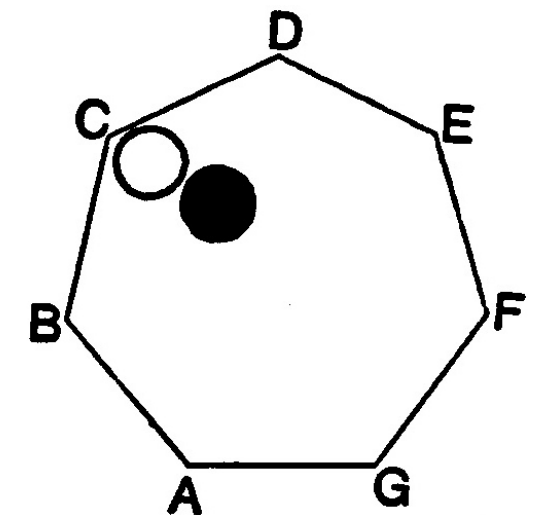
1. Here is part of a jigsaw puzzle on which a triangle is marked. Which is the missing piece?



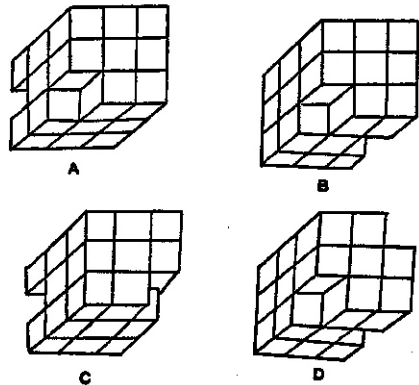
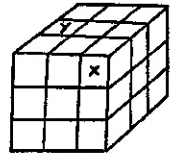
2. Whose face is in the mirror?



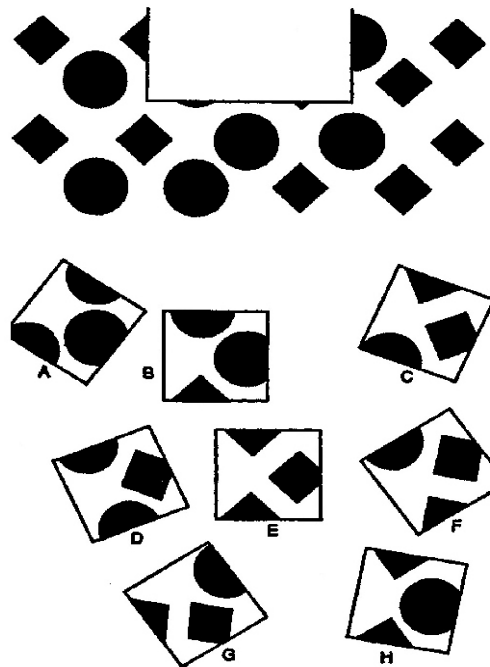
3. The black ball moves one position at a time clockwise. The white ball moves two positions at a time counter-clockwise.  
(A) In how many moves will they be together again?  
(B) In which corner will they be when they meet?



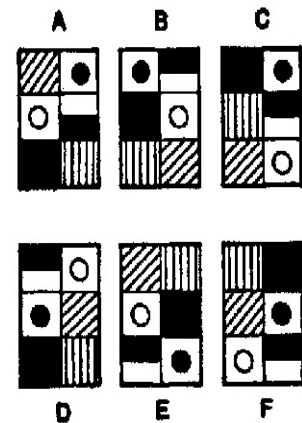
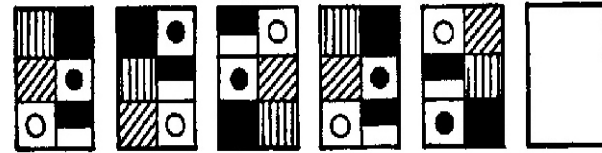
4. Imagine that blocks x and y are removed from the arrangement below, and that the remaining shapes are turned upside-down. Which of the other shapes will result?



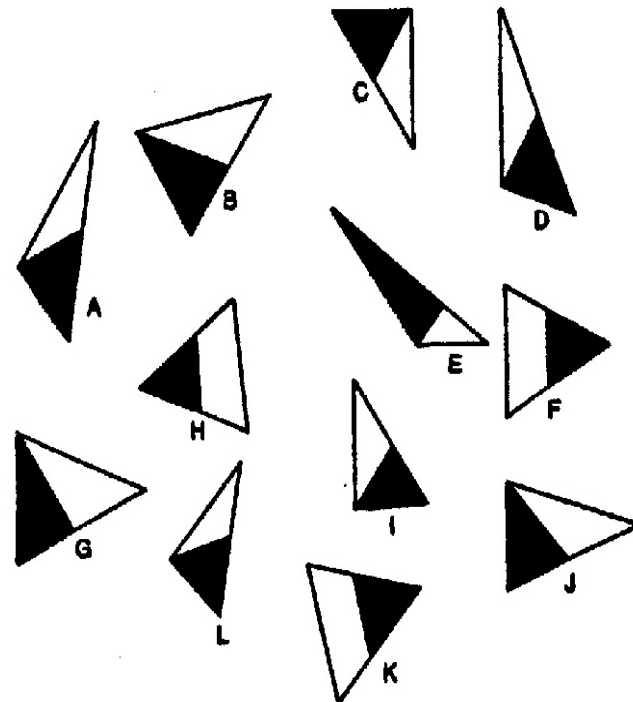
5. A closet has been removed from a room, leaving a space on the floor with no carpet. The rest of the floor is carpeted, and fortunately there are some pieces of carpet left over. Which two pieces will fit the empty space and exactly match the existing carpet?



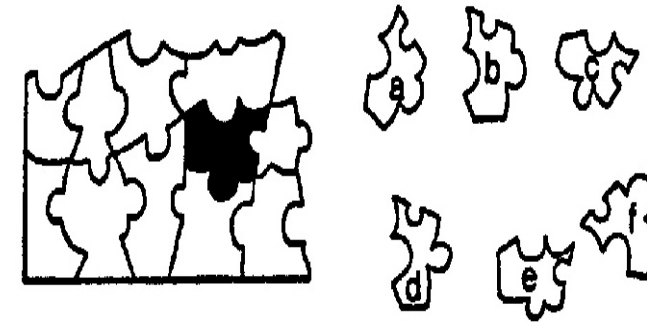
6. Which of the designs at the bottom should occupy the empty space?



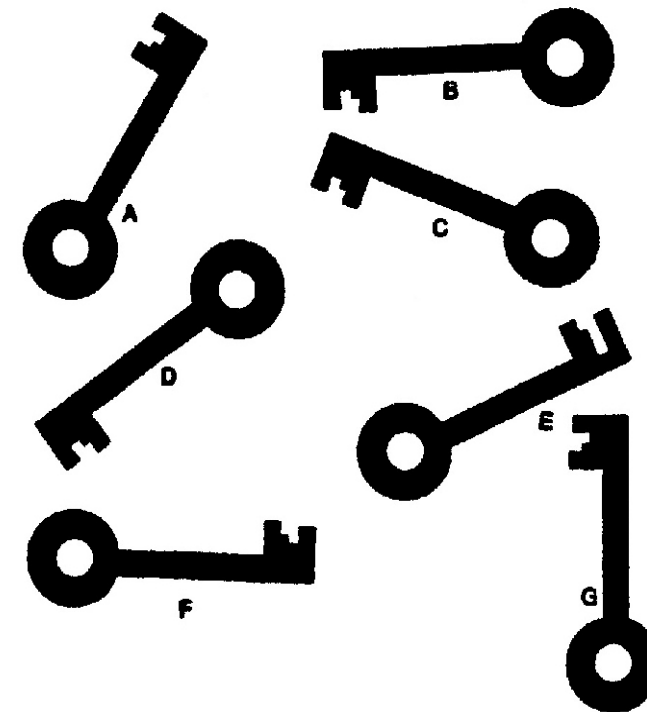
7. Arrange these into four pairs:



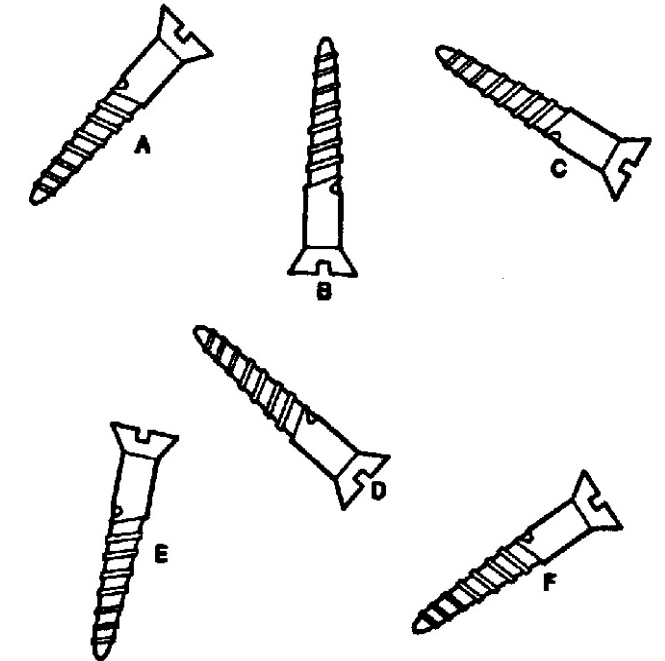
8. Which piece completes the jigsaw puzzle?



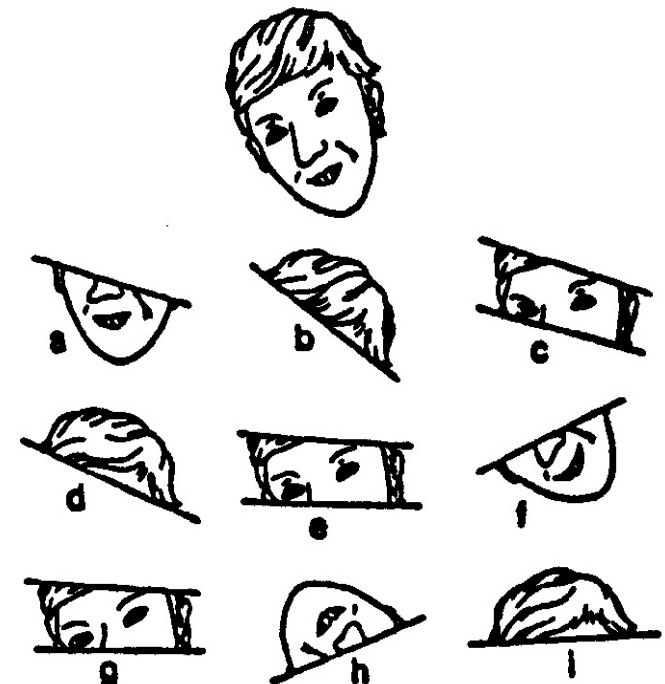
9. Six of these keys will open the door. Which one won't?



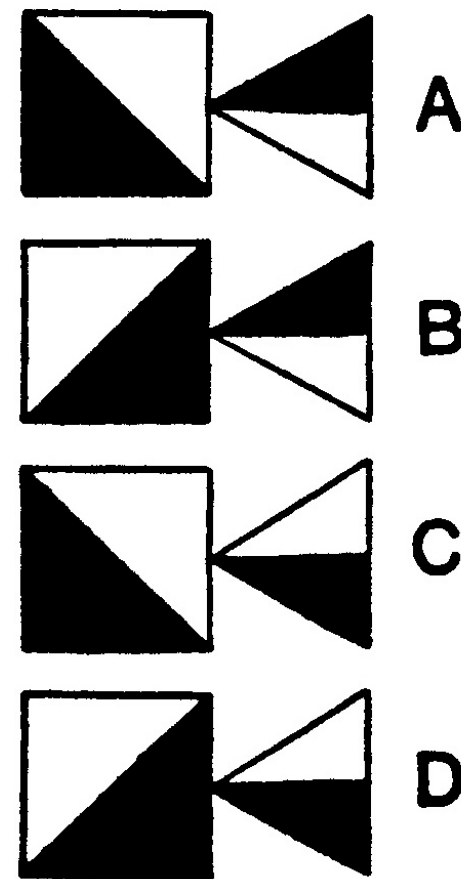
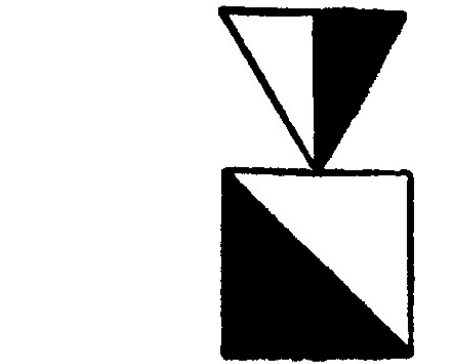
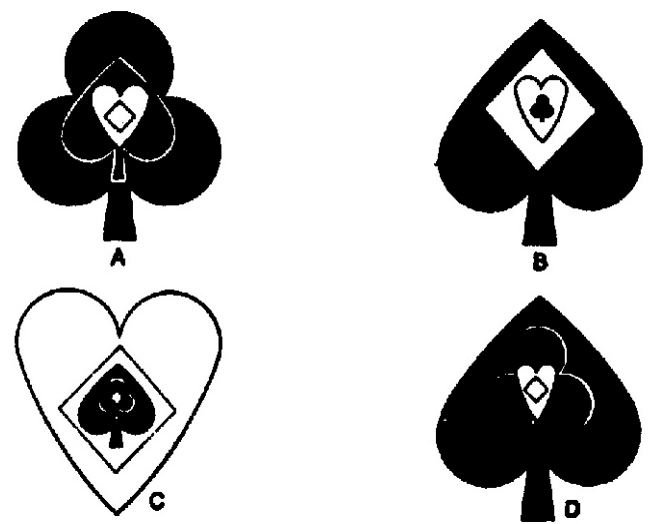
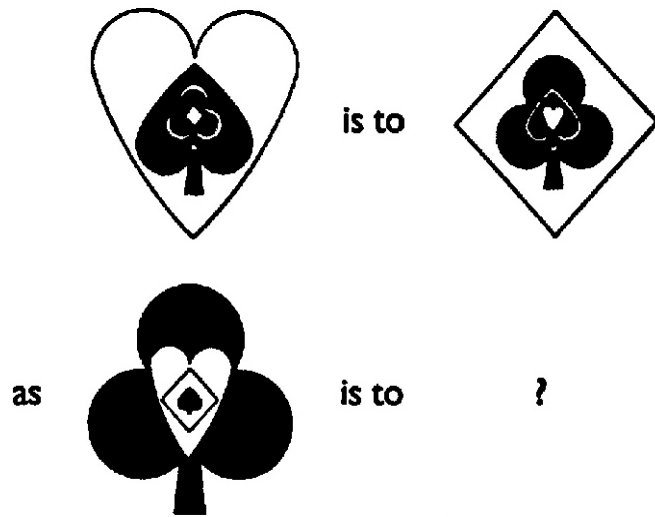
10. Which screw is different?



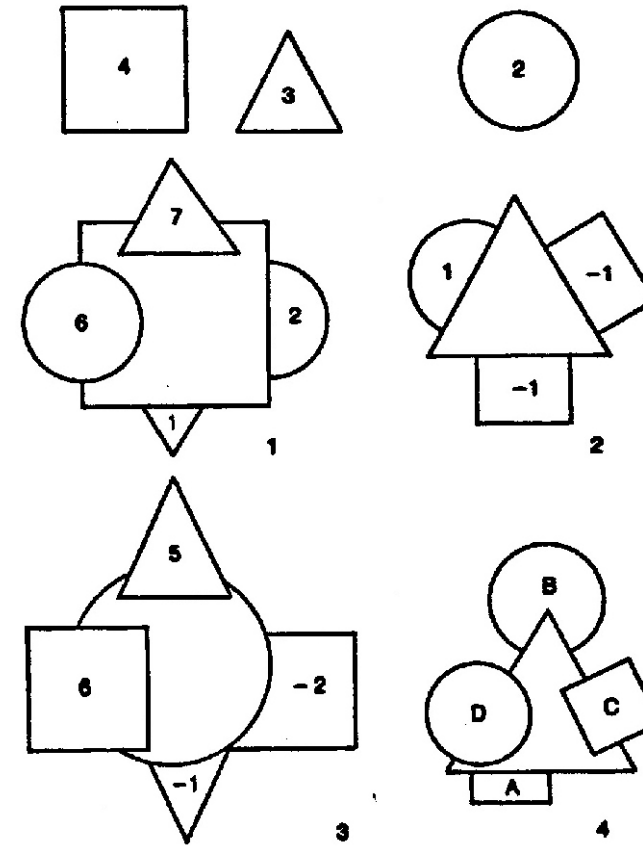
11. Which three pieces below will make the face above?



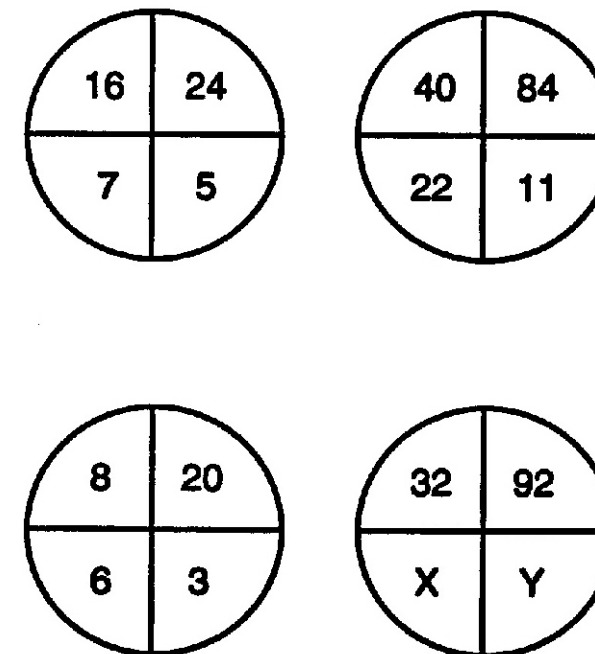
12. 13. If this design were turned ninety degrees counter-clockwise and held in front of a mirror, which of the design below would be reflected?



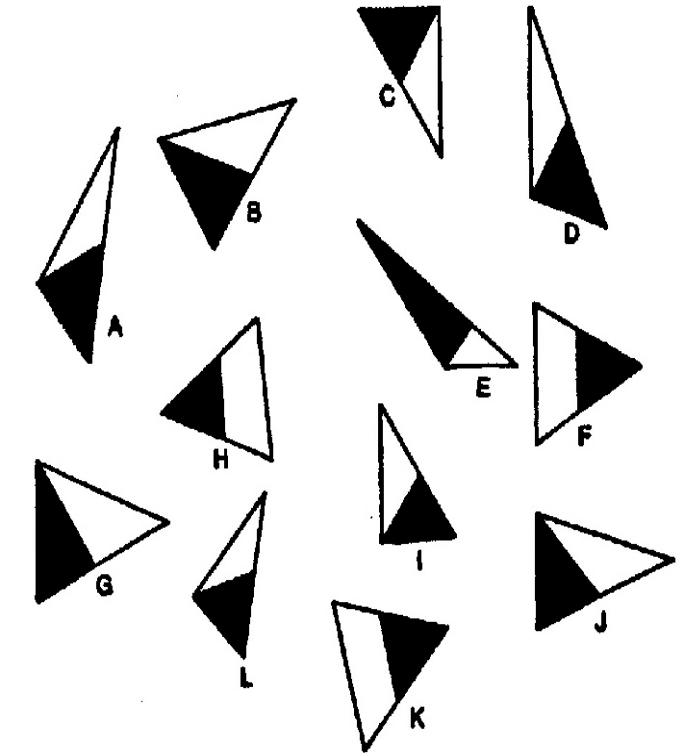
14. Give values for A, B, C, and D



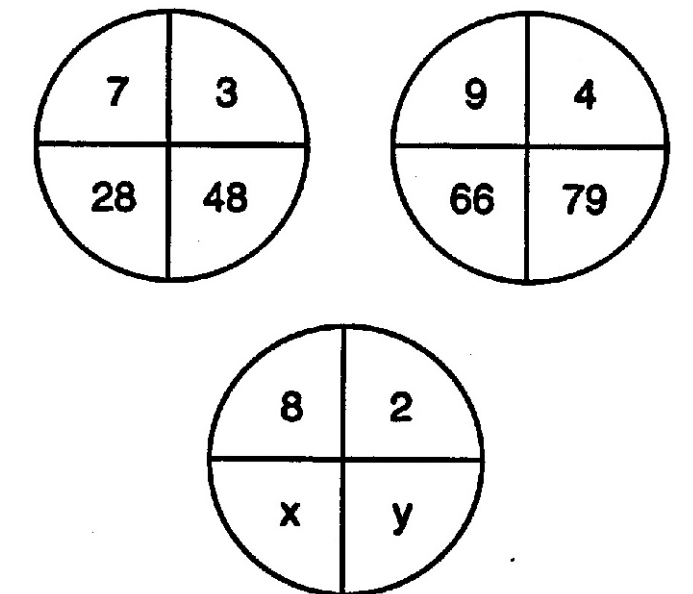
15. What are x and y?



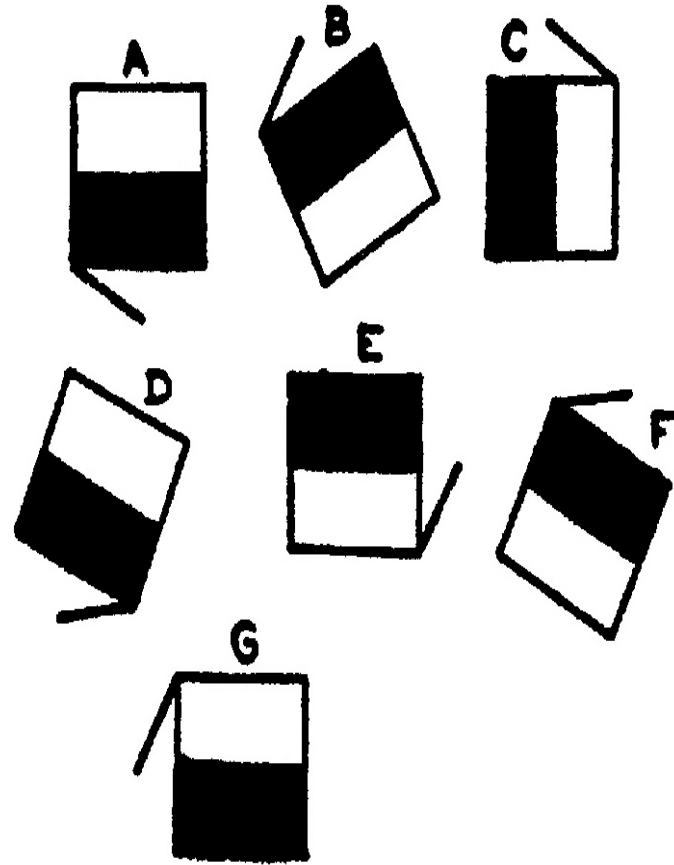
16. Which triangle is wrong ?



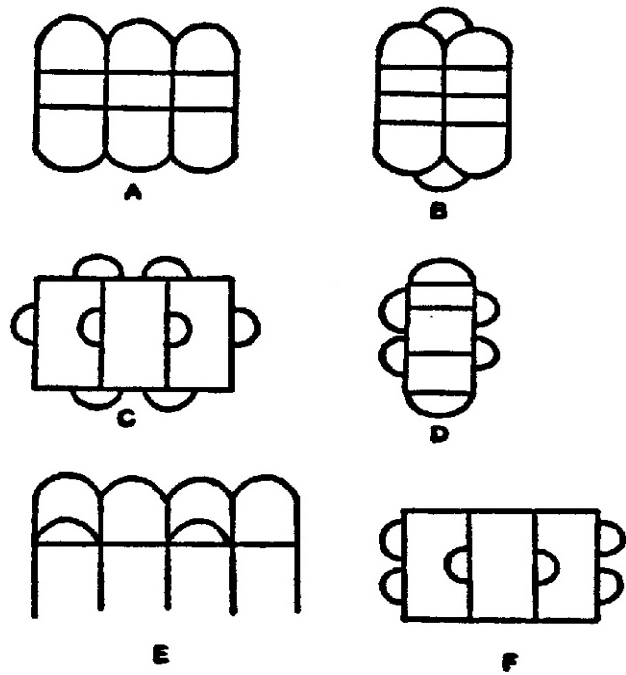
17. What are x and y?



18. Which one of these figures is wrong?



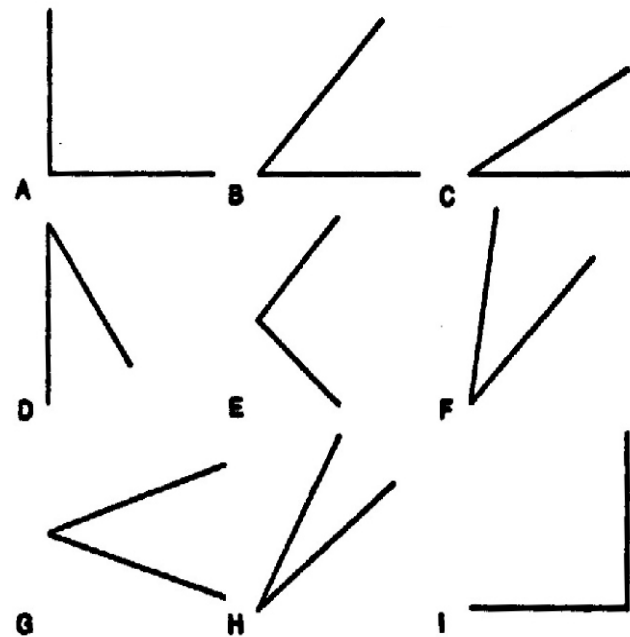
19. Which is the odd one out?



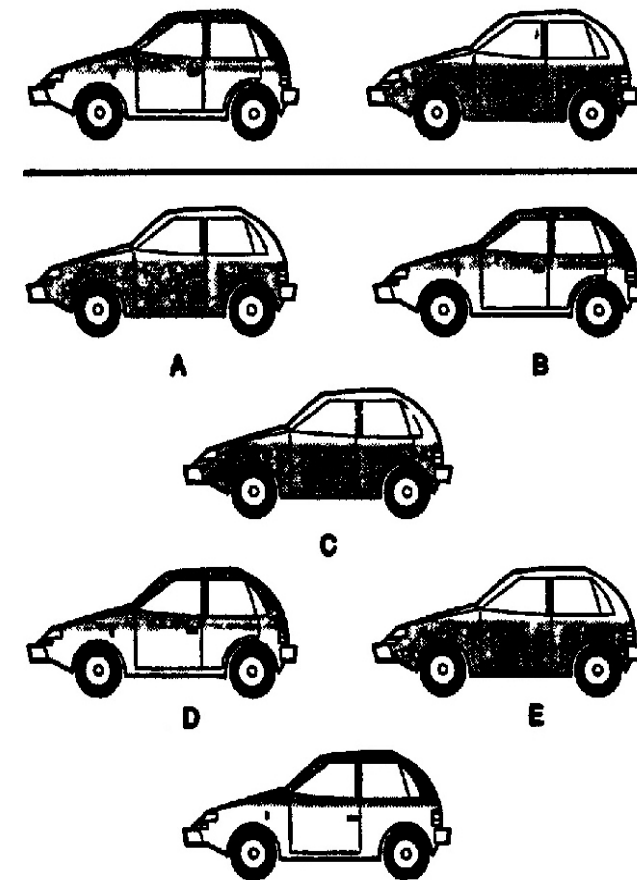
20. Complete the final square:

935 148	824 365	713 582
KWG UAM	JVF WCJ	IUE YEG
X7Z 3U7	W6Y 5W4	

21. Which one is wrong?

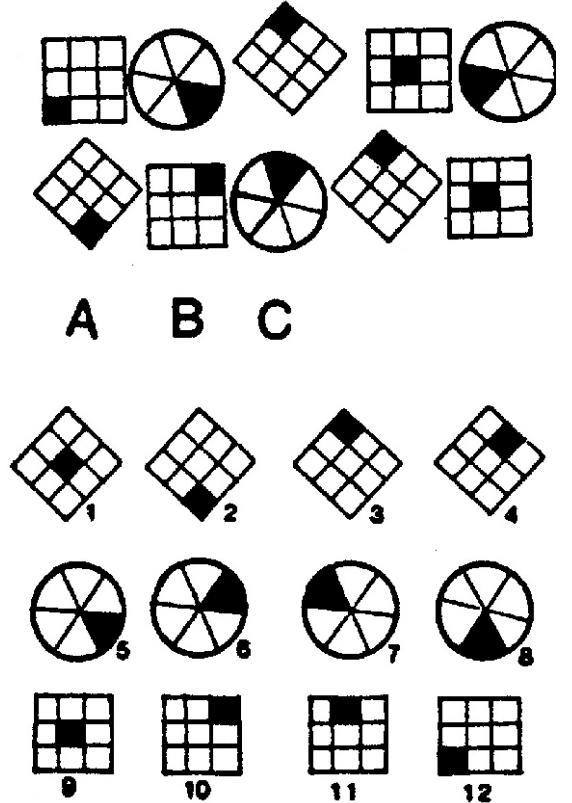


22. Assuming that the top two cars are correct, which of those below are wrong?

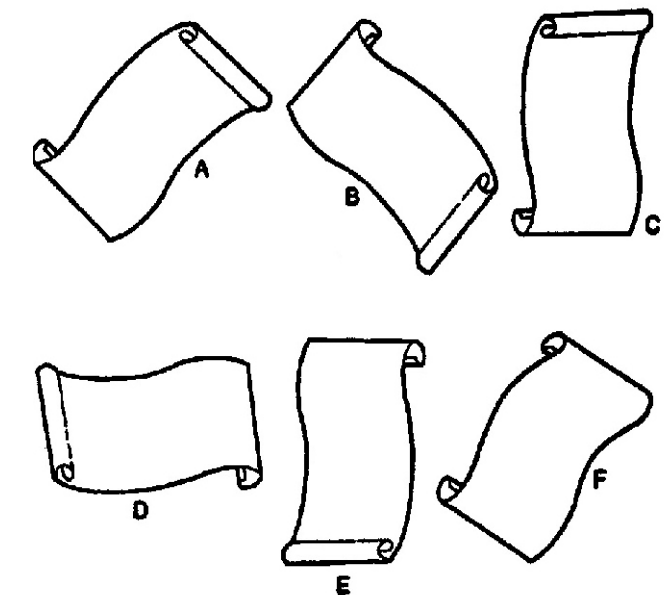


23. If  $\frac{PIG}{8}$  is D and  $\frac{DOG}{13}$  is B, what is this?  
 $\frac{CAT}{4}$

24. Which of the numbered figures at the bottom should take the place of A, B, and C?

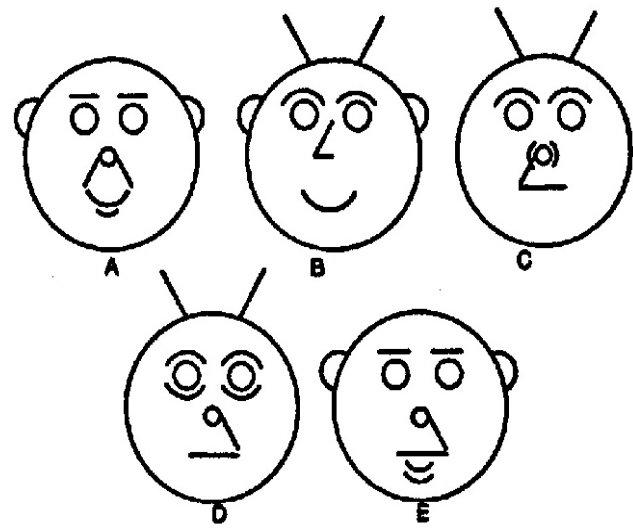


25. Which scroll is wrong?

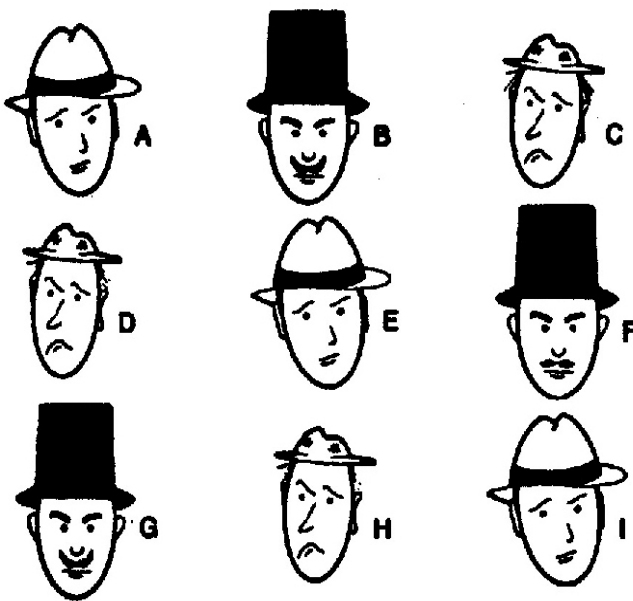




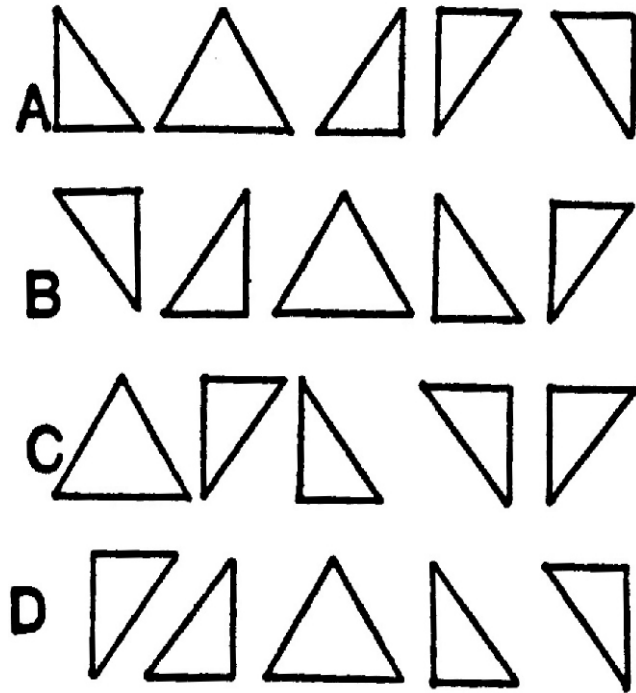
26. Whose face is wrong?



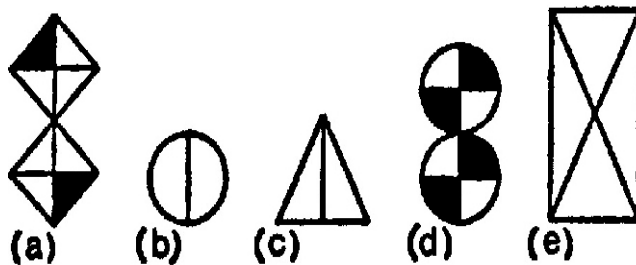
27. Which gentleman has changed his appearance?



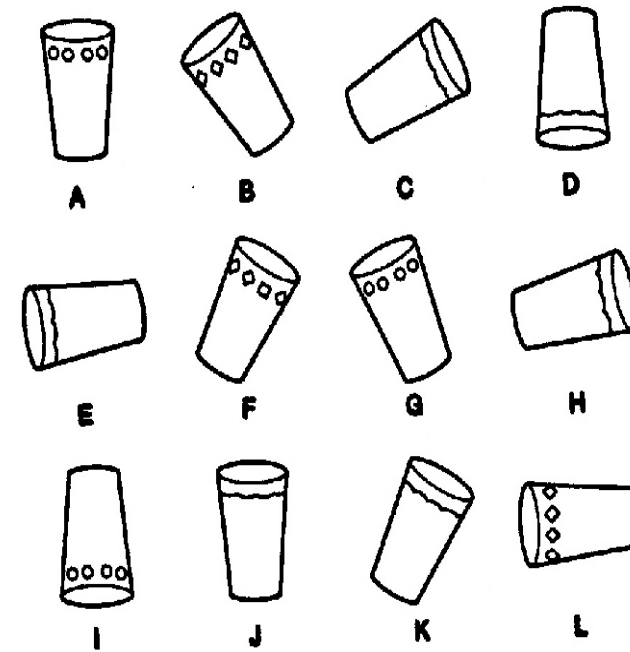
28. Which row is wrong?



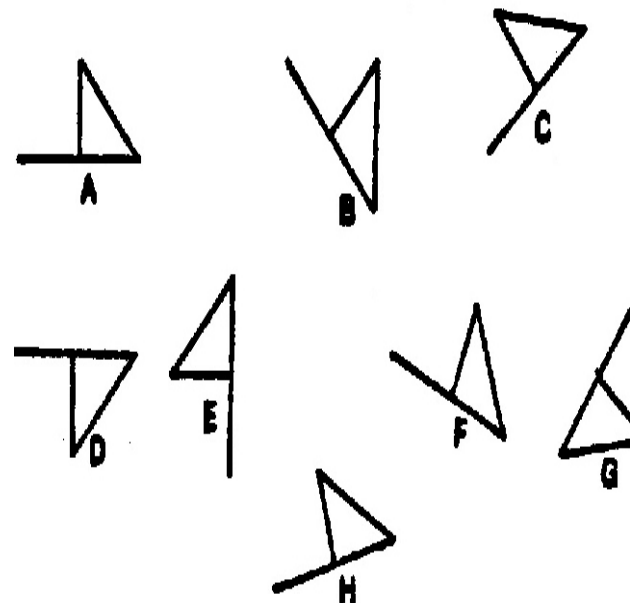
29. Which of these figures is the odd one out?



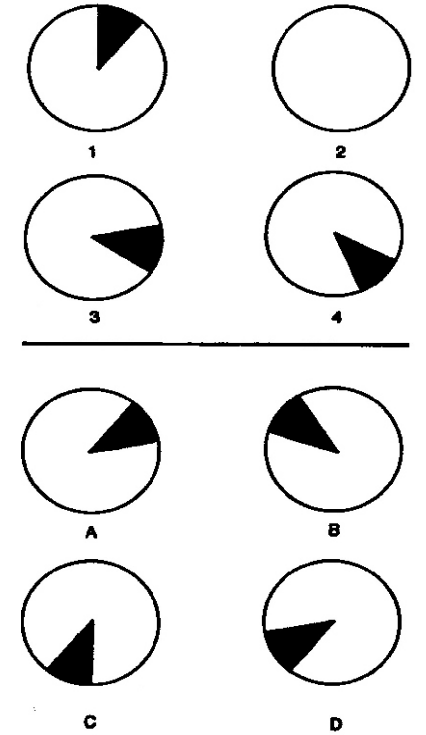
30. Which tumbler is wrong?



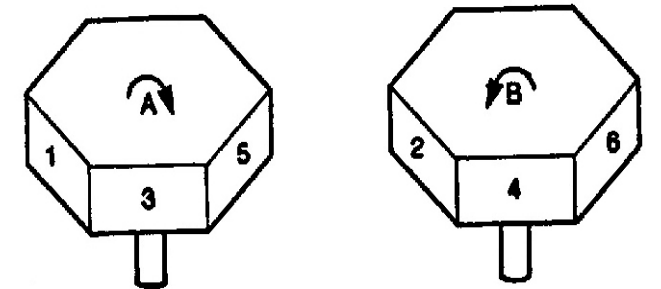
31. Which one is wrong?



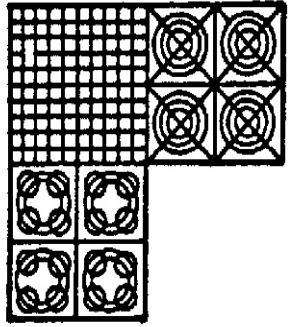
32. Which of the circle at the bottom should take the place of No. 2 at the top?



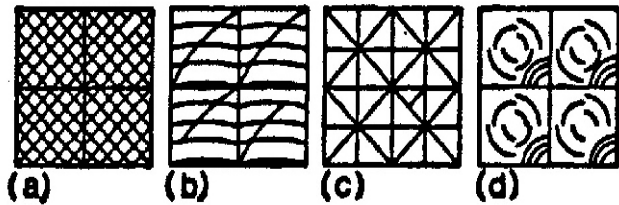
33. A turns clockwise, two positions at a time. B turns counterclockwise, three positions at a time. After six moves, what will be the total of the two front faces? (The concealed numbers progress in the same way as the visible numbers :7,9 and 11 on A and 8, 10, 12 on B.)



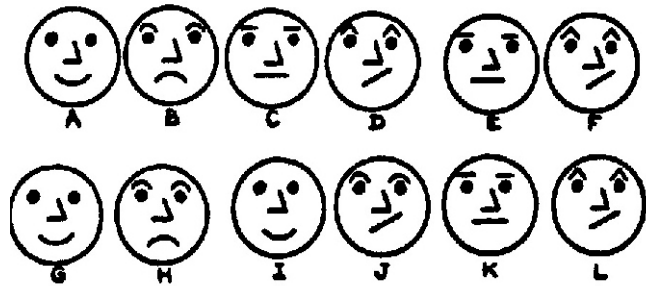
34. Study the diagram and decide what logically should be the missing section from the choices given.



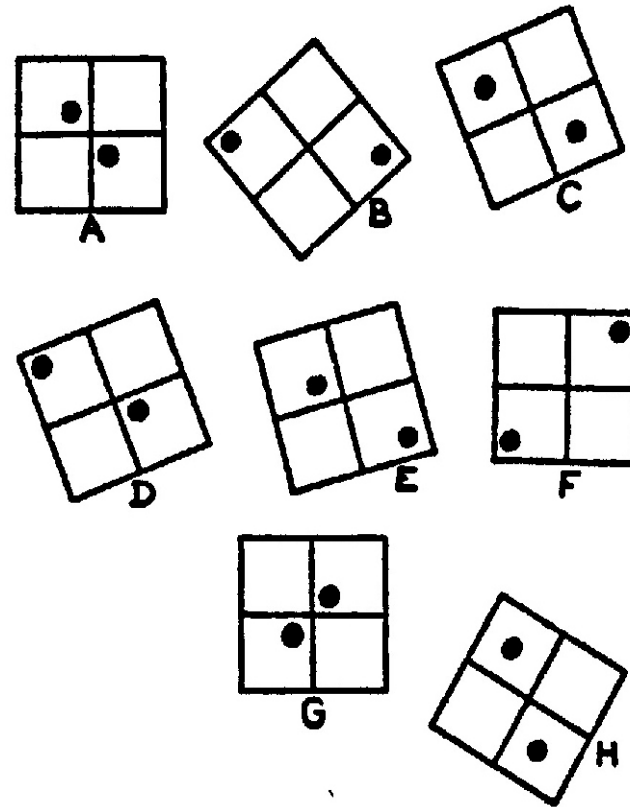
Choose from:



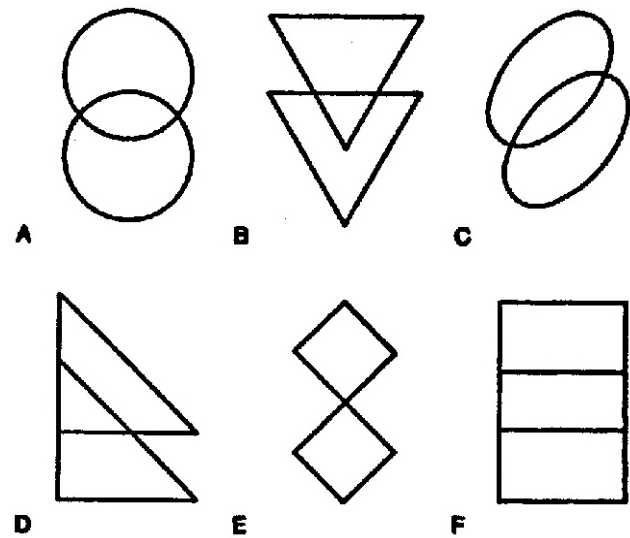
35. Who has change his expression?



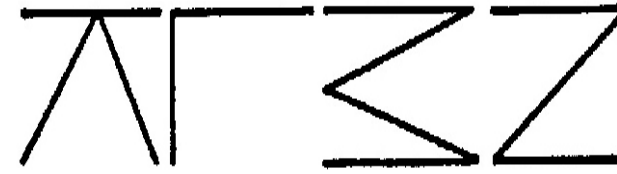
36. Arrange these into four pairs:



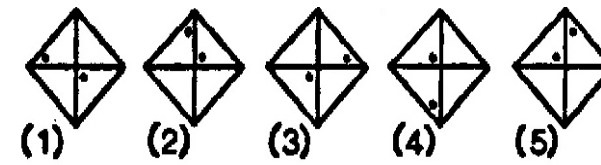
37. Which one does not conform with the others?



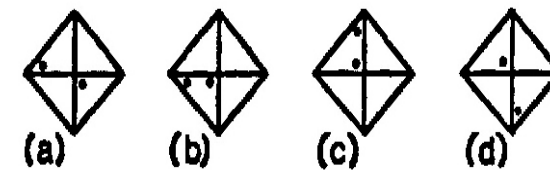
38. What comes next?



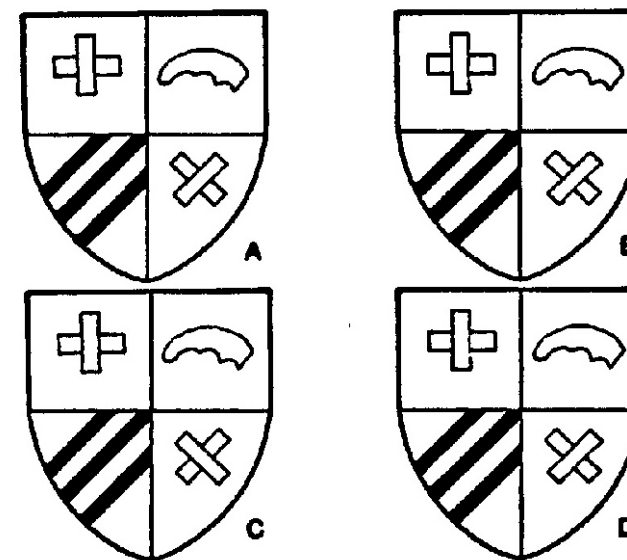
39. Find the next figure:



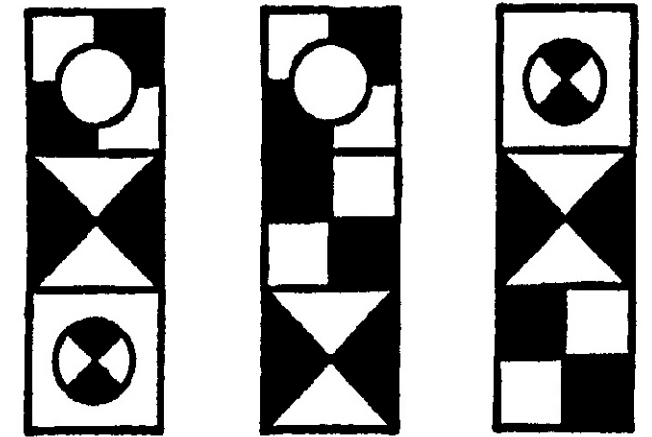
Choose from:



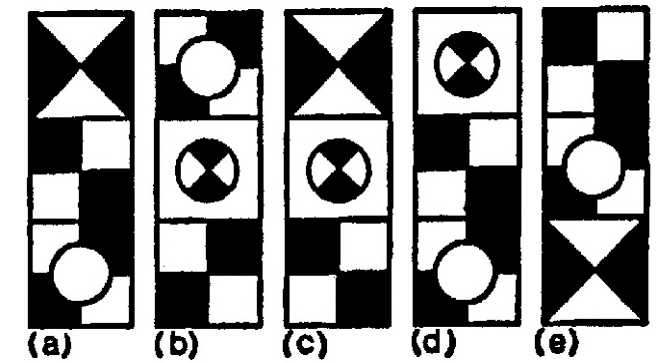
40. Which shield is wrong?



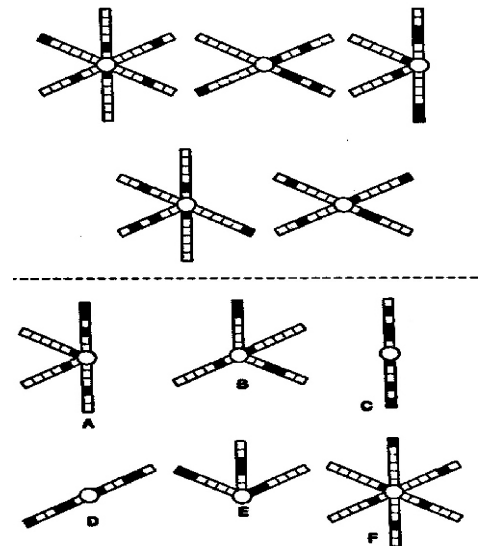
41. Consider the three trominoes below.



Now choose one of the following to accompany the above:

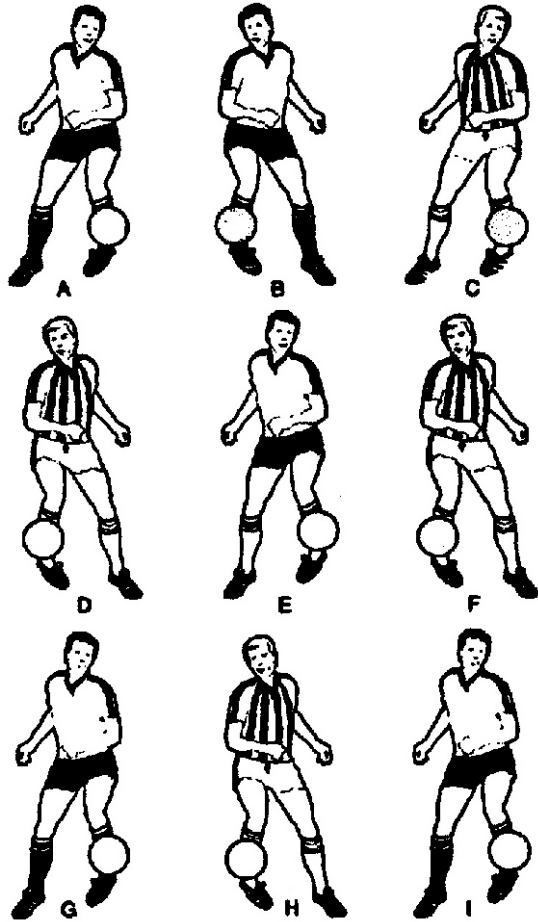


42. Which of those at the bottom comes next?

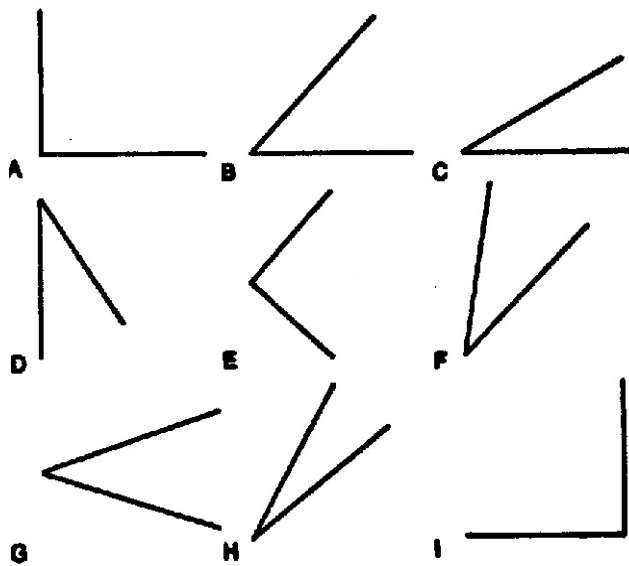




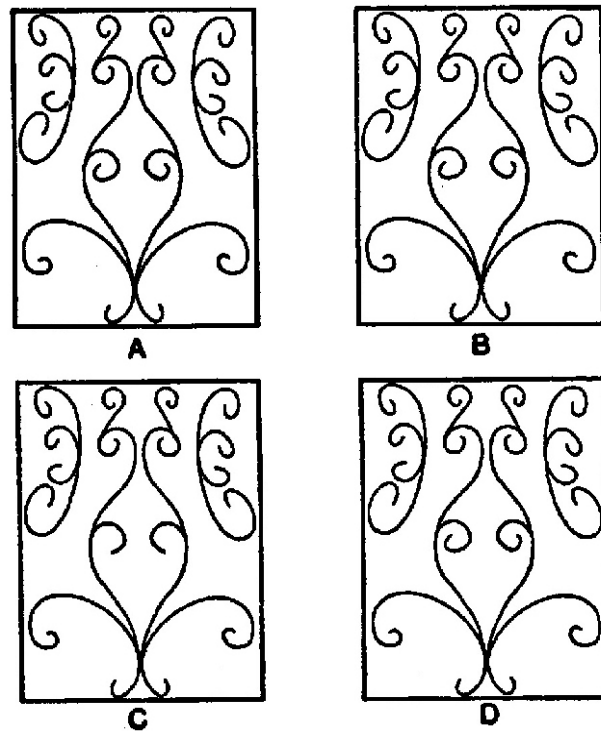
43. Which soccer player is incorrectly dressed?



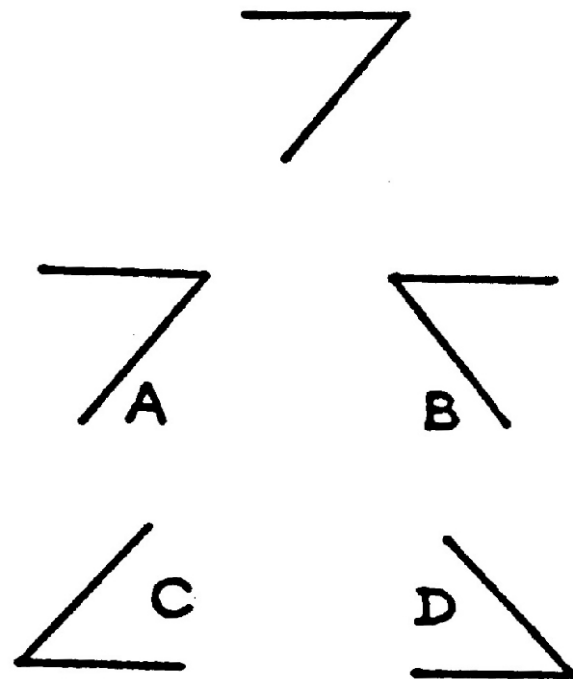
44. Which one is wrong?



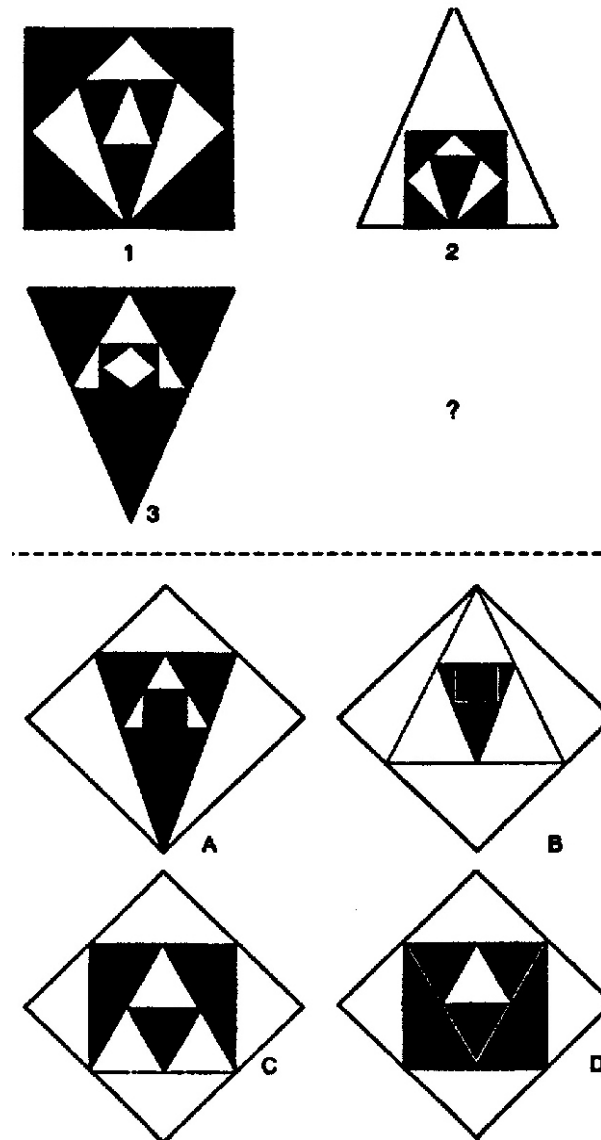
45. Which of these wrought-iron gates differs from others?



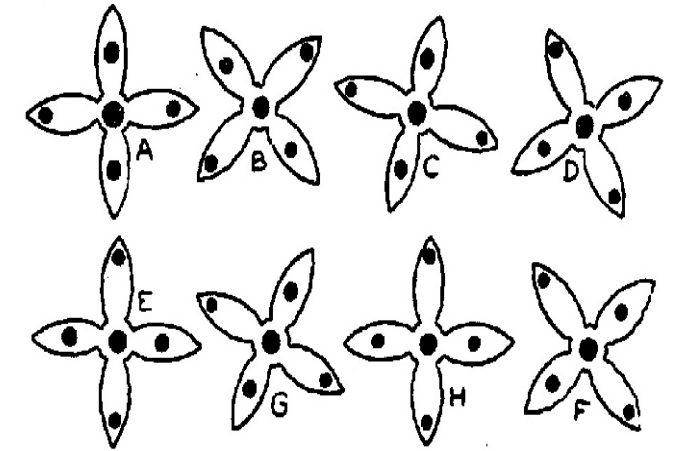
46. If the figure below were held in front of a mirror and the mirror turned upside-down, which of the other figures would be reflected?



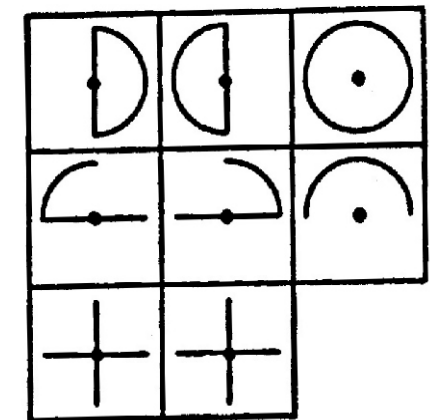
47. Which of the figures at the bottom should follow 3 at the top?



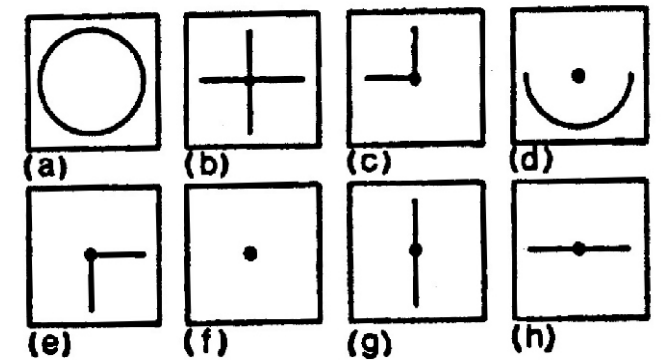
48. Arrange these partners into four pairs



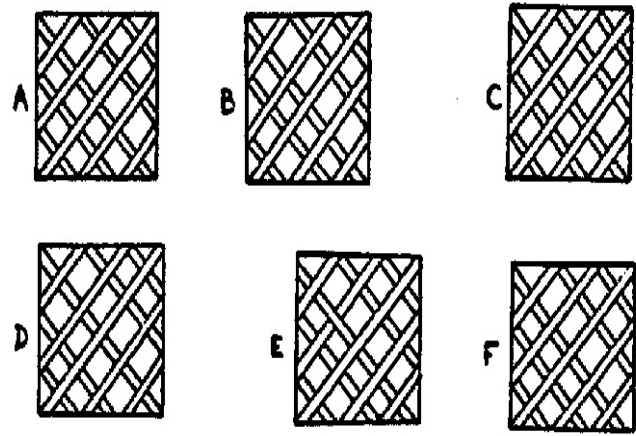
49. Looking along the line horizontally, and then down each line vertically, to find what, logically, should be the missing square.



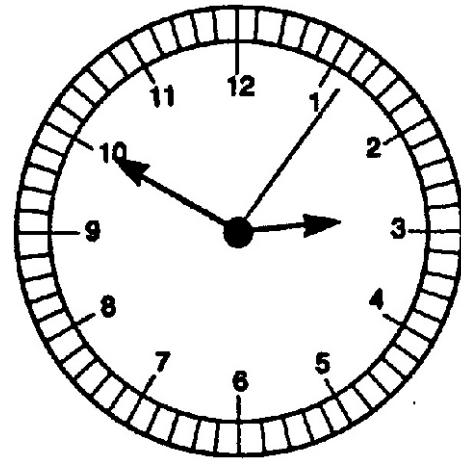
Choose from:



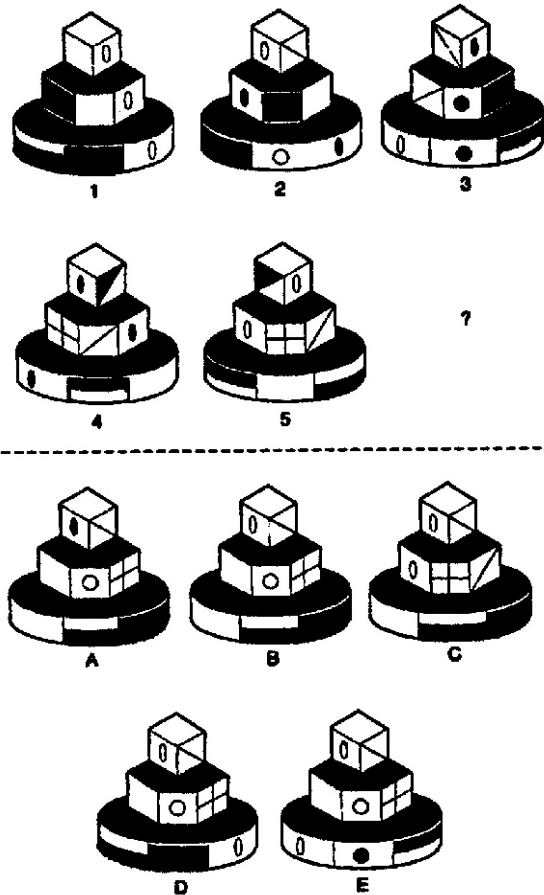
50. Which trellis is wrong?



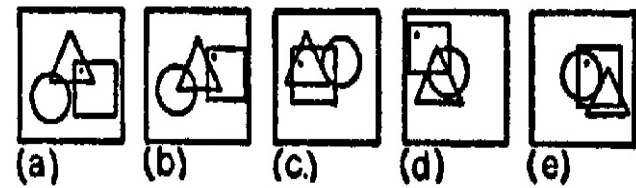
52. What time will this clock show in  $3\frac{1}{2}$  hours' time, assuming that it loses four seconds in every hour? (State the exact time).



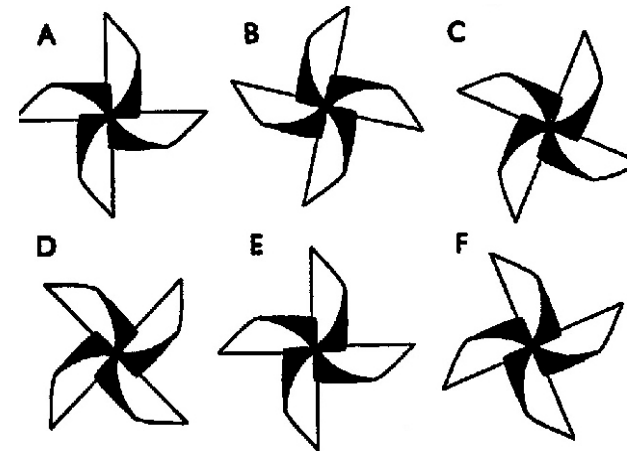
53. Which of the figure at the bottom should come next?



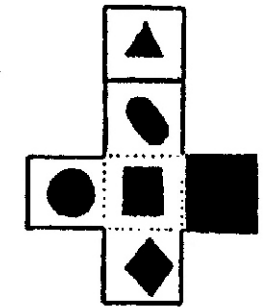
51. An intelligence test in which you are shown a number of boxes and asked to choose the one which is different is called "Classification". Which one of the following boxes is the odd one out?



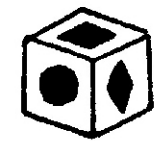
54. Which is the odd one out?



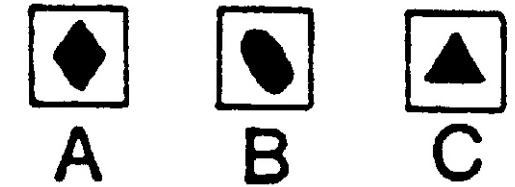
56. If this shape were folded along the dotted lines, it could be made into a cube:



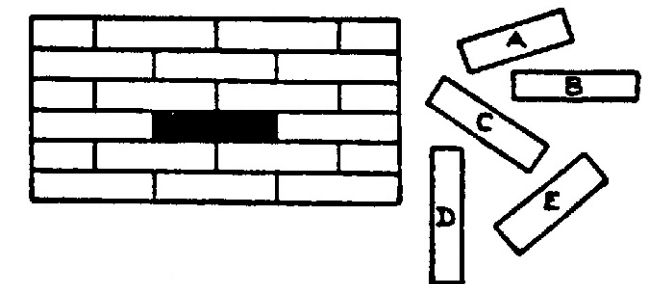
like this:



If this cube were turned upside-down, which of these faces would appear at the top?



57. Using your eye only, which is the missing brick?



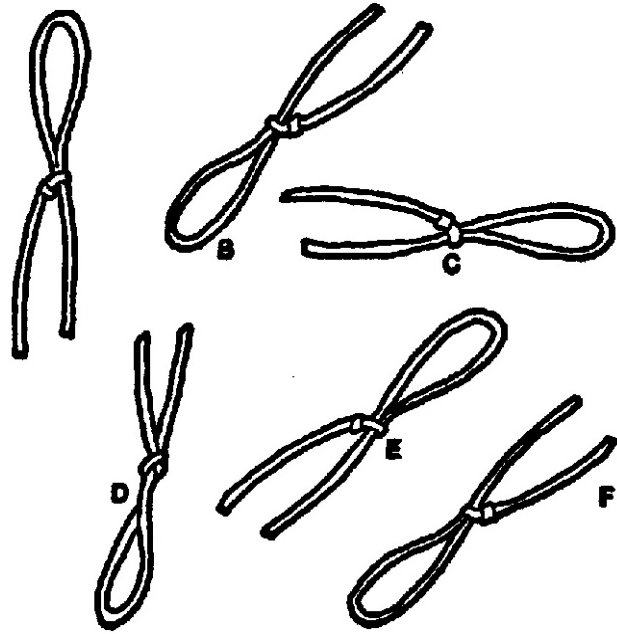
55. Study the numbers in each horizontal row and then decided what, logically, the missing numbers should be.

331	2311	121321
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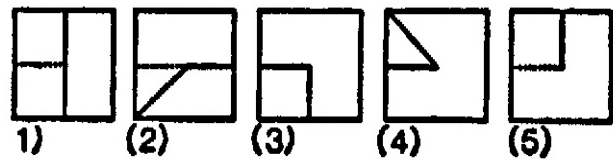
233	1223	112213
-----	------	--------

121	111211	
-----	--------	--

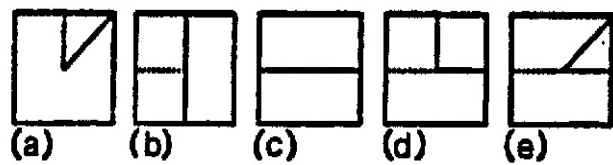
58. Which knot is different?



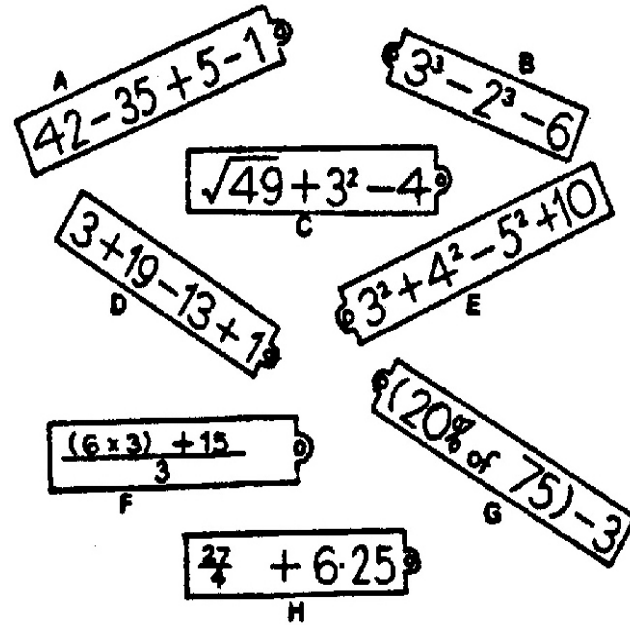
59. Find the next figure:



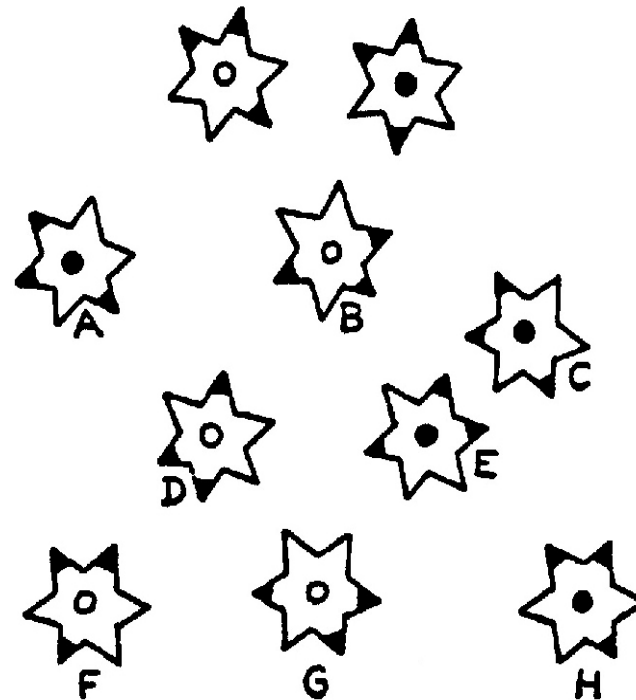
Choose from:



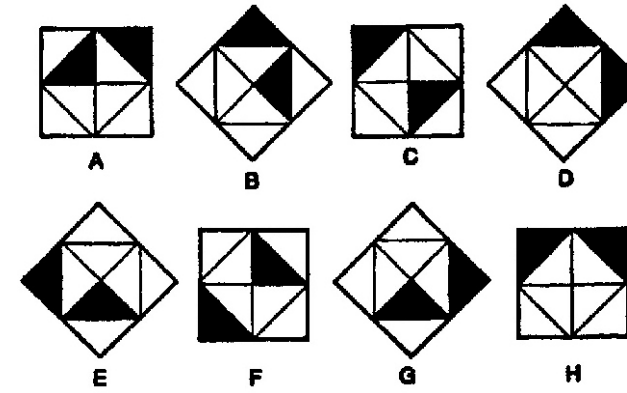
60. Arrange the labels into four pairs:



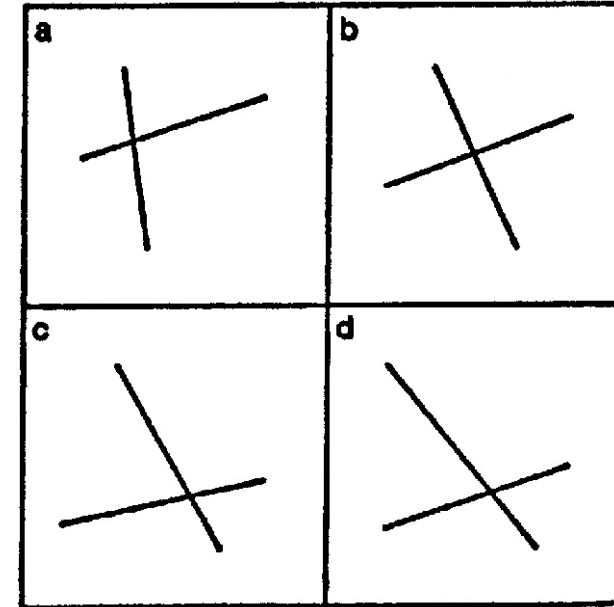
61. Assuming that the top two star are correct, which of those below are wrong?



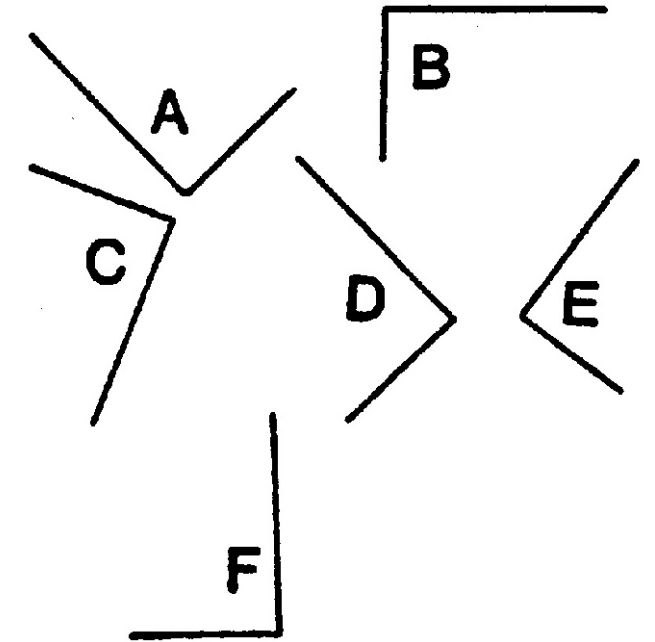
62. Arrange these into four pairs.



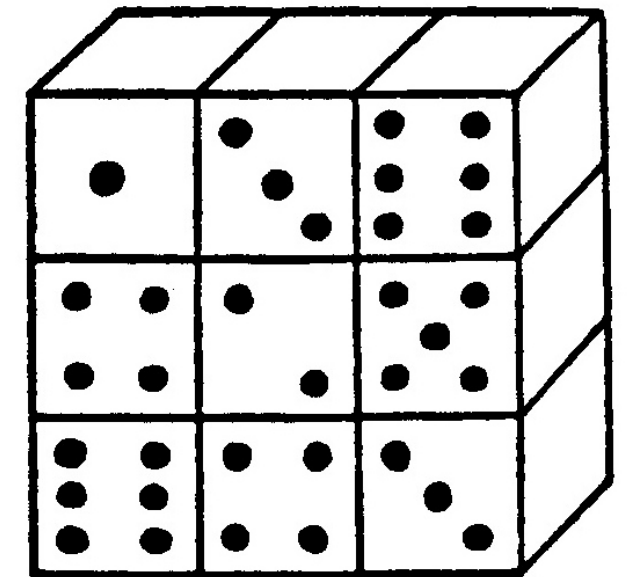
63. Which of these four crosses is the odd one out?



64. Which one is wrong?



65. What is the TOTAL number of sport on the rear side?





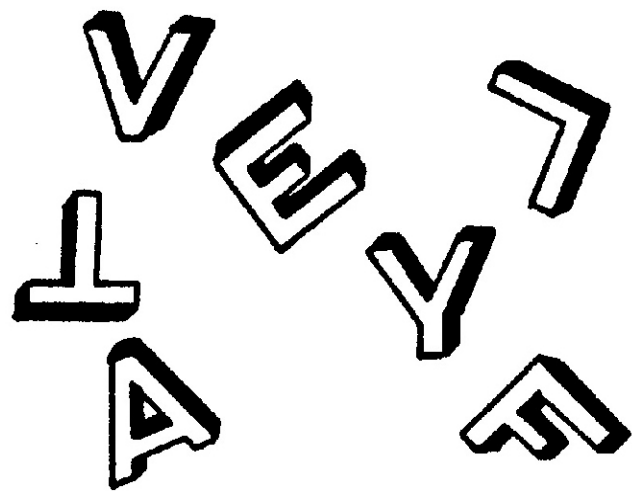
66. Find the missing square:

FR	NE	TO
TE	FE	SN
ET	OE	

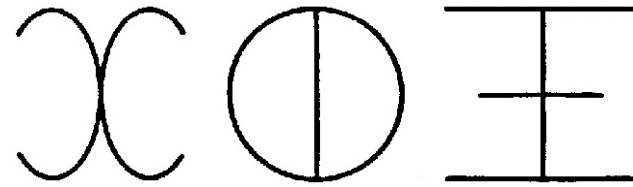
Choose from:

(a) TE	(b) ZF	(c) XN	(d) OK
(e) PC	(f) KR	(g) SX	(h) MX

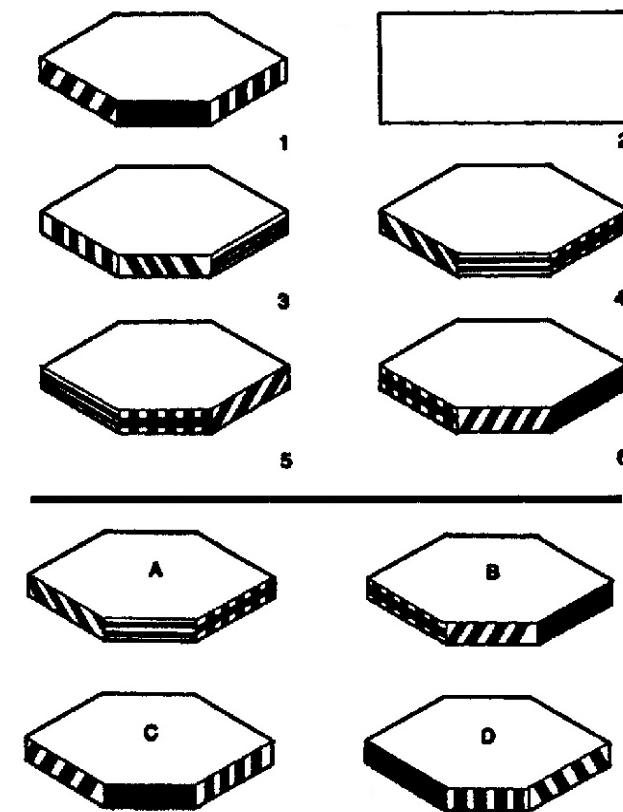
67. Which letter does not conform with the others?




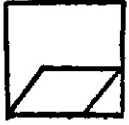
68. What comes next?

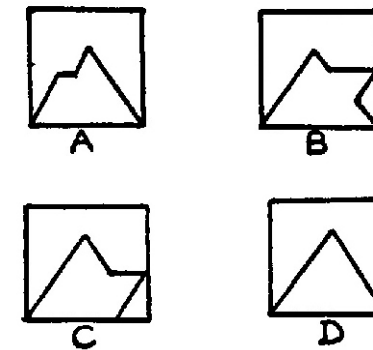


69. Which of the figure below should occupy the vacant space?

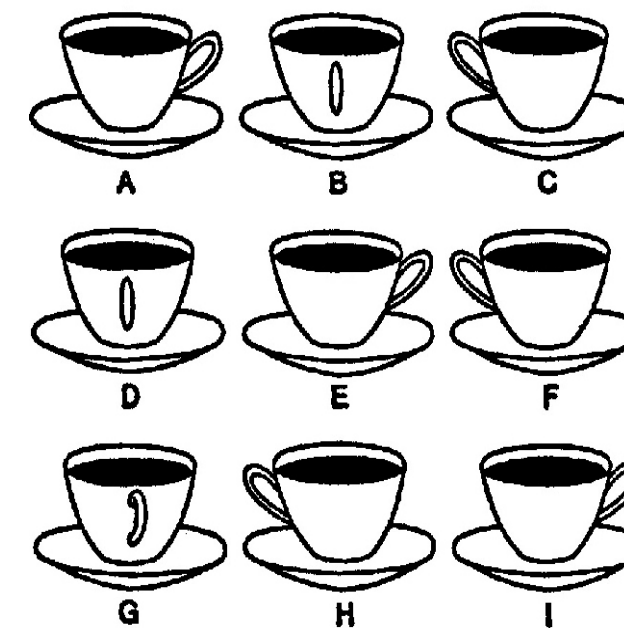


70.

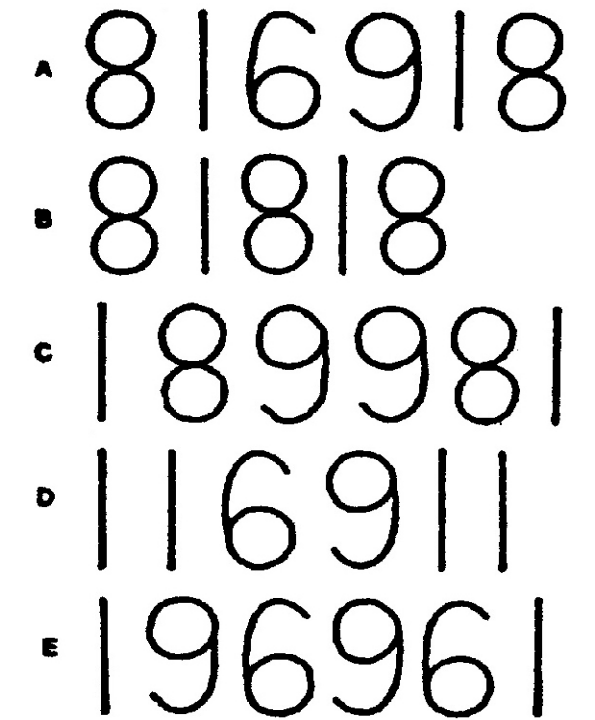
If  is superimposed on  which of the OUTLINES below will result?



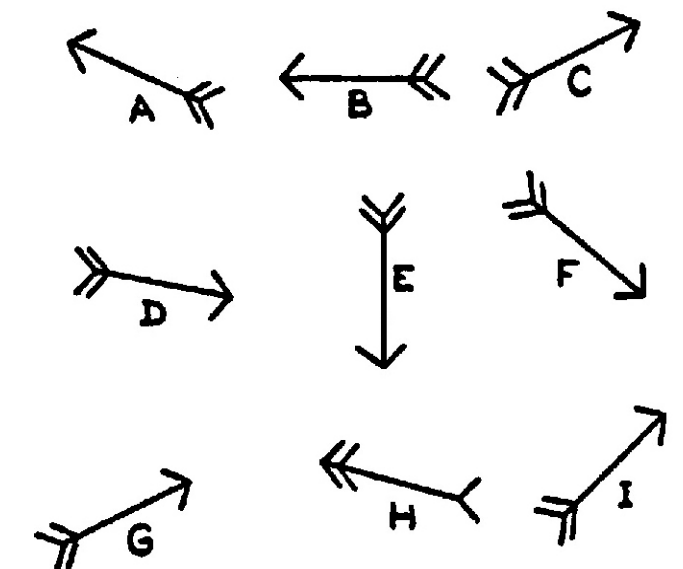
71. Which cup is the odd one out?



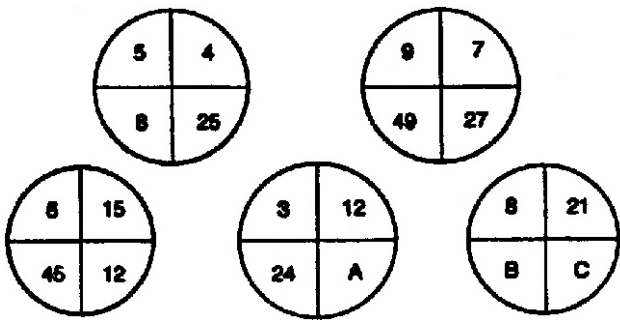
72. Without turning the page upside down, which of these numbers will not read the same when turned upside-down?



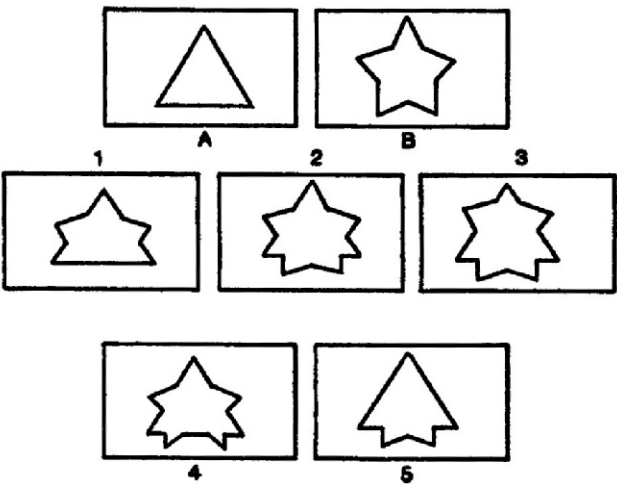
73. Which of these is wrong?



74. What are A, B, and C?



75. If A were placed on top B which of the outlines below would result?



ANSWERS AND EXPLANATIONS

1. B

2. A

3. (A) 7; (B) C

BLACK BALL	WHITE BALL
1st Move	D A
2nd Move	E F
3rd Move	F D
4th Move	G B
5th Move	A G
6th Move	B E
7th Move	C C

4. B Removing blocks x and y leaves the following. Turned upside-down, this corresponds with B.

5. B and D

6. D The black square moves counterclockwise, first one position, then two, then three, and so on. All other squares moves in the same way.

7. AF; Bc; DH; EG

8. B

9. E - The teeth ( the projections at the end ) which turn the lock are different from those in the other keys.

10. C - The thread turns the opposite way from the others

11. B, E, and H
12. B The very small center suit becomes the large outer suit. The next smallest inner suit becomes the next largest outer suit. The next smallest inner suit becomes the next largest outer suit. The largest outer suit becomes the smallest center suit.

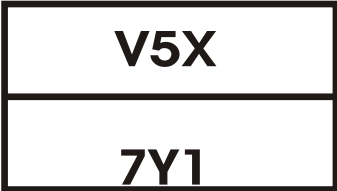
13. A

14. A is -1; B is 1; C is 7; D is 5  
We know that a square is worth 4 points, a triangle 3 point and a circle 2 points.  
A figure lying ABOVE another adds its value to that of the one below. A figure lying BENEATH another deducts its value from the one above. So, in the first diagram:  
The top triangle (3) adds its value to the square beneath it (4) and is worth 7; the circle on the left (2) adds its value to the square beneath it (4) and is worth 6; the bottom triangle subtracts its value (3) from that of the square (4) and is worth 1; the circle on the right subtract its value (2) from that of the square (4) and is worth 2.  
Thus in the last diagram:  
Square A is worth -1 (3 - 4).  
Circle B is worth 1 (3 - 2)  
Square C is worth 7 (4 + 3)  
Circle D is worth 5 (3 - 2).

15. X is 9 or 24; y is also 9 or 24.  
In each case, the number at the top are divided by 4 in the opposite quarter and 1 is added.  
  
An alternate solution is that the numbers in the lower quarter are multiplied by 4 in their opposite quarters and 4 is deducted from the result.

16. E - There are four different types of triangle here:  
Equilateral (all sides equal)  
Isosceles (two sides equal)  
Right-angled (one right angle)  
Scalene (all sides unequal)

Each is shaded according to its type, the scalene triangle being shaded like this:



In E, however, is shaded like this:

17. X is 11; y is 61

In the first circle, the number in the top left quarter is squared and then reduced by 1 in the opposite diagonal quarter; the number in the top right quarter is cubed and then 1 added to give the number in the opposite lower quarter.

In the second circle, the same procedure is followed, except that 2 is deducted from the squared number and 2 is added to the cubed number.

Therefore, in the third circle, 3 is deducted from the square of 8 (64 becomes 61, the value for y). while 3 is added to the cube of 2 (8 becomes 11, the value for x).

18. (A) When the diagonal line from the base-line of the square inclines to the right, as in C, E and G, the right half of the square is black. When it inclines to the left, as in B, D, and F, the bottom half of the square is black. In A, the right half of the square should be black.

19 (C) In C there are 8 curves and 6 straight lines. In all the others there are 6 curves and 6 straight lines.

20. In the top line, all the way through, whether using letters or numbers, they reduce one position in each successive square.

In the bottom line, they increase by two position, except for the last term, which reduces its position by three places from that in the previous square.

21. G - The angle is 60°. The others are 90°, 45° or 30°.

22. C and F

23. F - If each letter has a value according to its position in the alphabet, the total of each word is as follows:

P I G ..... 32  
D O G ..... 26  
C A T ..... 24  
32 (PIG)  $8 = 4$  that is, D (the 4th letter)  
26 (DOG)  $13 = 2$  that is, B (the 2nd letter)  
24 (CAT),  $4 = 6$  that is, F (the 6th letter)

24. A5; B2; C12  
Consider the movements of the black section in each figure. It goes diagonally across the square from bottom left to top right and then back again:

In the circle, it moves two segments at a time in a clock-wise direction:

In the diamond it moves alternately from top to bottom:

25. F Both scrolls are turned the same way; in all others one is turned inwards and the other outwards.

26. B The face in B is composed of three circle, four straight lines and the five curves. All the other faces have four circles, four straight lines and four curves.

27. F - His mustache differs from B and G.

28. C Except for C, each row contain 1 equilateral triangle, 2 right-angled triangle with the base at the bottom and 2 with the base at the top. In C there are three right-angled triangles with the top and only one with the base at the bottom.

29. C All the others are symmetric about a horizontal axis, i.e, they appear the same turned upside down.

30. F The design around the top should consist entirely of diamond shapes, as in B and L. One of the diamonds has become a square.

31. D - The triangle should be on the right-hand side of the base-line.

32. A  
The black section rotates clockwise 40° at a time.

33. 7  
The moves result as follows:

	A	B
1st move	7	10
2nd move	11	4
3rd move	3	10
4th move	7	4
5th move	11	10
6th move	3	4
		(Total:7)

34. D So that each corner sub-square of each of the four main sections has a line missing.

35. J The mouth should be the same as in B and H.

36. A G B F C H D E

37. E In all the others identical shapes overlap:

- (A) two circles
- (B) two equilateral triangles
- (C) two ovals
- (D) two right-angles
- (F) two square

In E there are two diamonds which do not overlap.

38. O - The letters K L M N have been turned on their sides. O is the next letter.

39. B - The outer dot moves clockwise, first by one position, then two positions, then three, etc. The inner dot moves counter-clockwise, first by one position, then two positions, then three, etc.

40. C - The cross in the bottom right quarter is different from those in the other shields.

41. D - To complete every possible grouping in three of the four different symbols.

42. A - From an examination of the black stripes on the vanes, the following fact emerge:

rotates counterclockwise one position at a time.

rotates clockwise one position at a time.

rotates counterclockwise one position at a time.

rotates counterclockwise two position at a time.

rotates clockwise two positions at a time.

rotates counterclockwise two positions at a time.



43. E - Soccer players in black short wear black socks; those in white shorts wear white socks. E is wearing black short and white socks.

44. G - The angle is 60°. The other are 90°, 45° or 30°.

45. C The middle scrolls do not conform with the others.

46. B - The fact that MIRROR (not the figure) is held upside-down will make no difference to the reflection.

47. A - The smallest figure in the center becomes the largest figure on the outside, while the other figure remain in the same order.

48. AEBDCGFH

49. Looking across, the curved lines merge and the straight lines disappear. Looking down, the reverse happens. The missing square is, therefore, (f).

50. E - The diagonal slat from top left to bottom right should pass under the other slats.

51. E. it is the only one where the dot is inside the circle.

52. 6 hours, 19 minutes, 52 seconds. The present time shown is 2 hours, 50 minutes, 6 seconds. Ignoring the seconds, the time in 31/2 hours will be 6:20. In the meantime, the second hand will have lost 14 seconds. Instead of showing six seconds after the hour it will show eight seconds BEFORE the hour - that is, 52 seconds. This means that the minute hand will not have reached the 20-minute mark, but will have passed the 19-minute mark.
53. B - The cube rotates clockwise; the hexagon rotates counterclockwise, the circle rotates clockwise.

54. B

55. 121 - 111211 - 311221. each number describes the previous number, i.e., 121 then 1 - 1, 1 - 2, 1 - 1, then 3-1s, 1 - 2, 2-1s,

56. C

57. C

58. D

59. E. There are two arms-one moves through 90 degrees each time and the other through 45 degrees. The dotted line never moves but is covered by the black arms when they coincide with its position.

60. AFBHCGDE  
Aand F each equal 11.  
B and h each equal 13.  
C and G each equal 12.  
D and E each equal 10.

61. F and H

62. D all the other words contain letters in alphabetical order.

63. C. It is the only cross that will not fit snugly inside a one-inch square.

64. E. Both lines are shorter than those in the other angles.

65. 29

66. G. SX. Each square contains the first and last letters of the numbers one to nine positioned in such a way so as to form a magic square where each horizontal, vertical, and coener-to-corner line total 15.

67. L. The block (the black portion) should be on the right of the letter.

68. The letters are C, D and E. In each case they are paired and joined together, first reserved and then printed correctly. The next letter is F, arranged in the same way.

69. D The figure is rotating clockwise.

70. B

71. G The handle is in the wrong position as compare with B and D.
72. C

73. H. The point has two barbs instead of one, and one set of tail feathers instead of two.

74. A is 9; B is 63; C is 16. Prime numbers are squared in the opposite quarter; even numbers are double in the opposite quarter; odd numbers are tripled in the opposite quarter.

75. 2

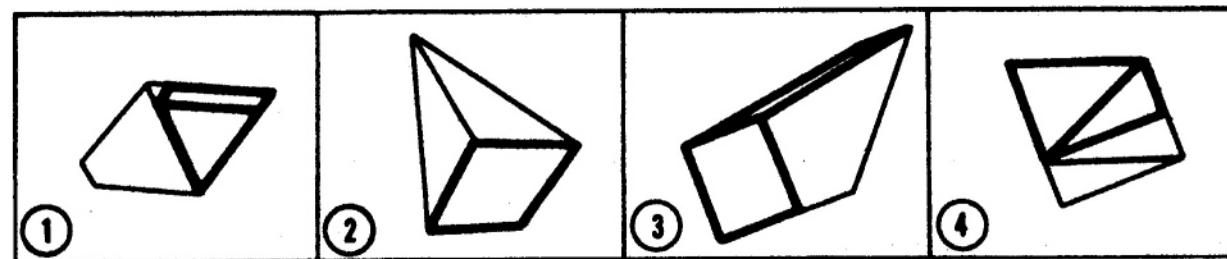
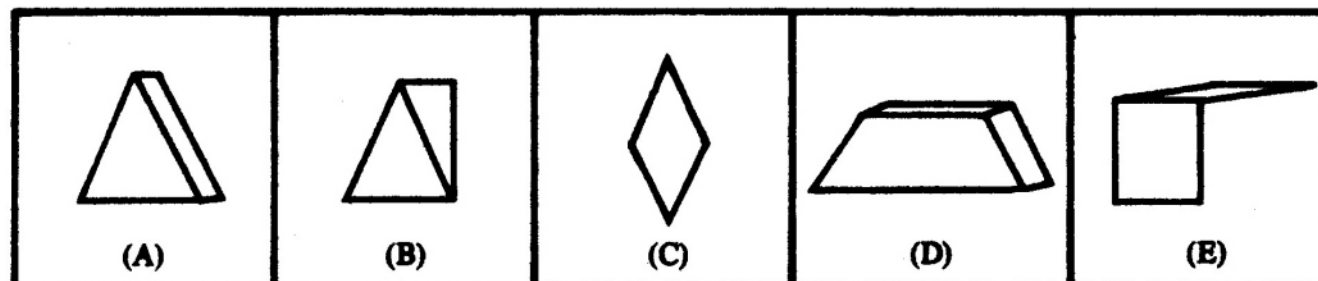
**FOR MORE ON THESE YOU CAN:**  
\* Call 08059573412 and enquire for a CD on these topic  
\* Visit our website [www.iecnetwork.com](http://www.iecnetwork.com) and download more questions and answers  
\* Attend our monthly seminar.  
\* Call 08033438062 for lecture arrangement at our office.

# HIDDEN FIGURES

Hidden figures test your ability to find a simple geometric pattern within a larger, more complex pattern. Each test presents a set of five simple patterns labeled (A), (B), (C), (D), and (E). These simple patterns are followed by a group of more complex patterns, which are numbered starting with 1. For each numbered pattern, you are to choose the one lettered pattern that can be found hidden within the more complex form. Try the four sample questions first. Then go on to do the three Hidden Figures Tests that follow. Correct answers to all Hidden Figures Test are consolidated at the end of this chapter.

## FOUR SAMPLE QUESTIONS FOR PRACTICE

STEP ONE: Examine the five simple figure below:



STEP THREE: On your answer sheet, blacken the letter of the simple figure found in each numbered complex figure. Correct answers to sample questions 1 to 4 are shown below and by the darkened lines above.

1 ● (B) (C) (D) (E)    2 (A) (B) ● (D) (E)    3 (A) (B) (C) (D) ●    4 (A) ● (C) (D) (E)

# HIDDEN FIGURES TEST I

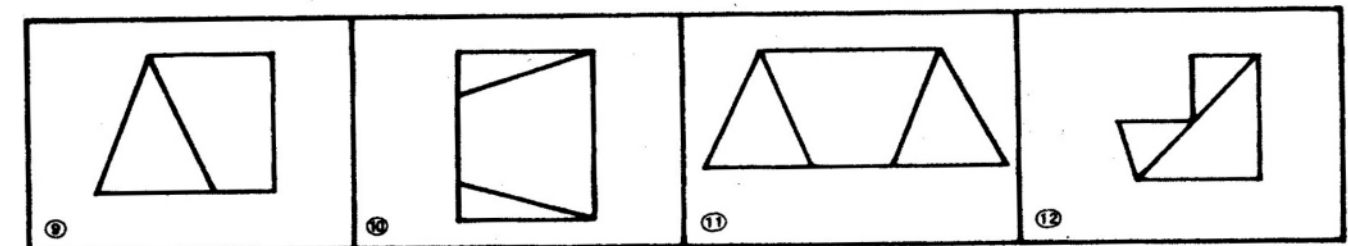
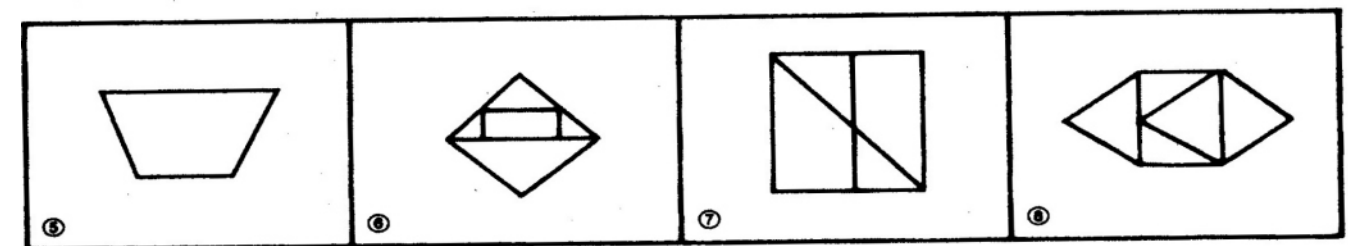
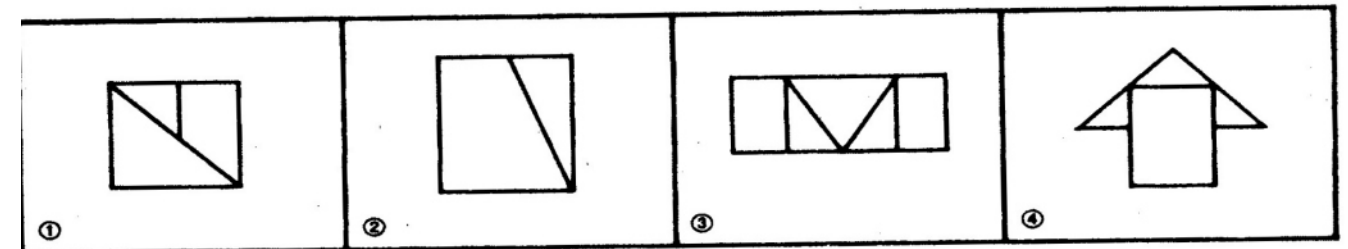
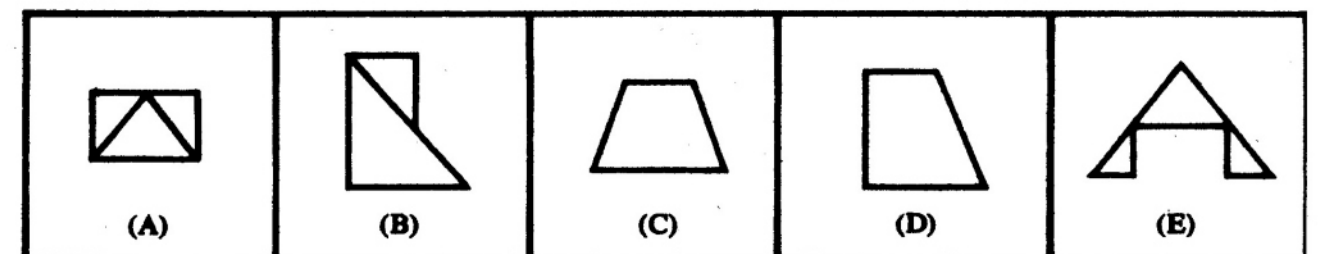
28 QUESTIONS

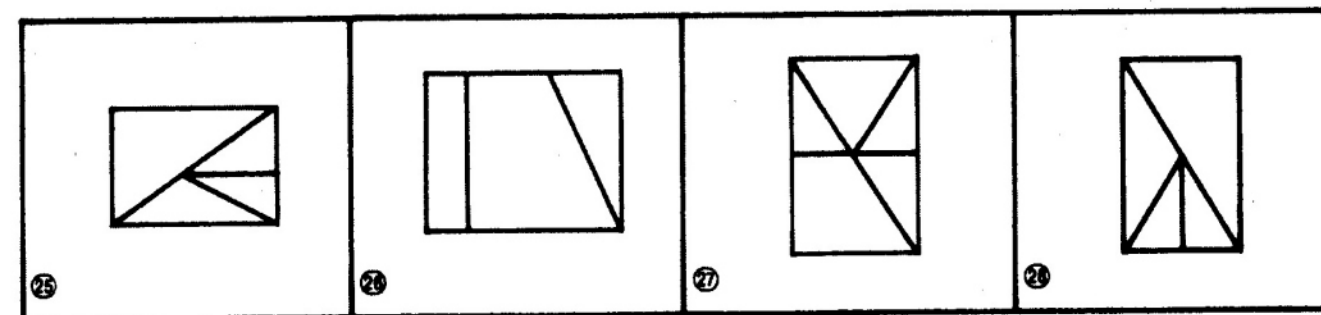
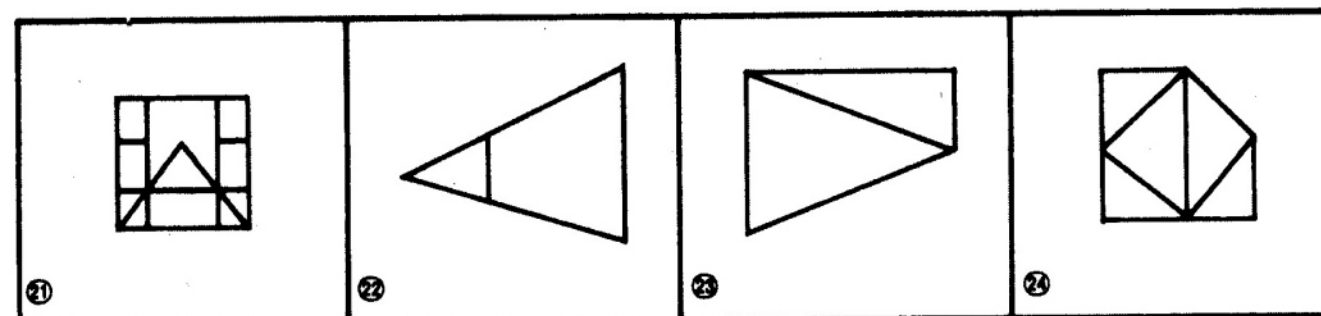
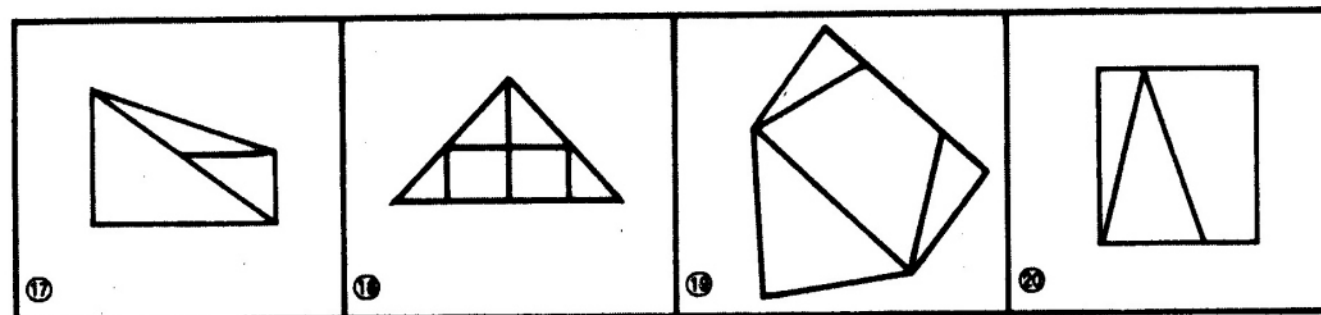
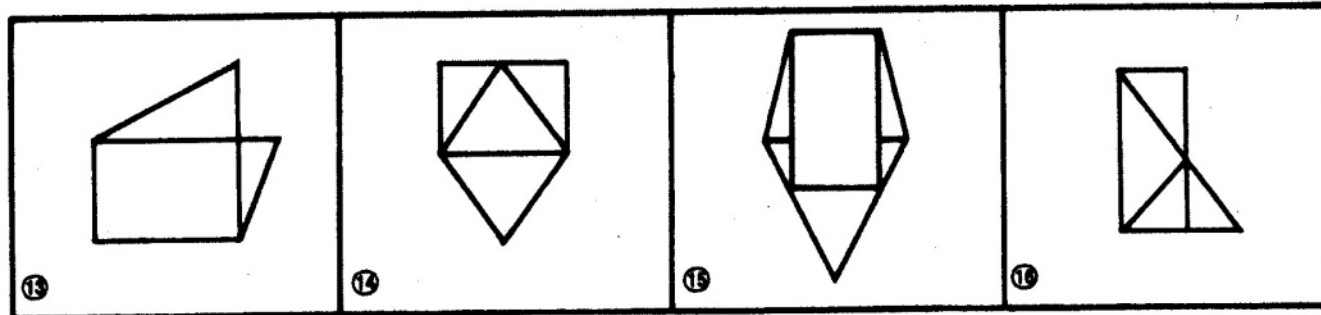
10 MINUTES

## DIRECTION:

Find the simple figures hidden in these more complex figures. On your answer sheet, blacken the letter that corresponds to the simple figure you find in each complex figure below.

Simple figures for questions 1 to 28



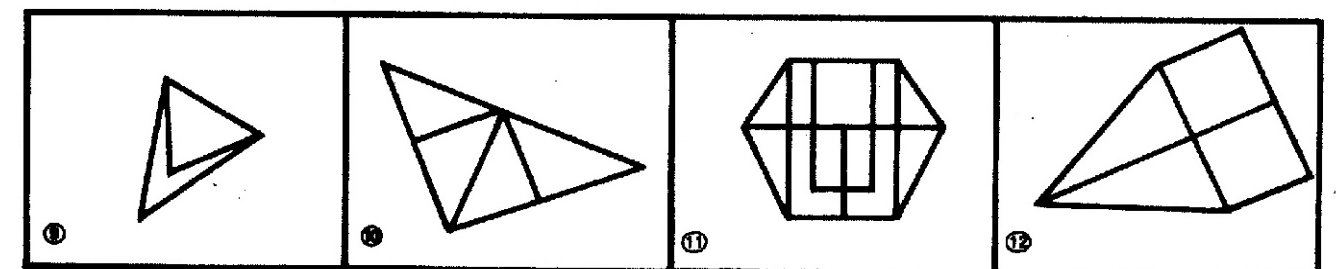
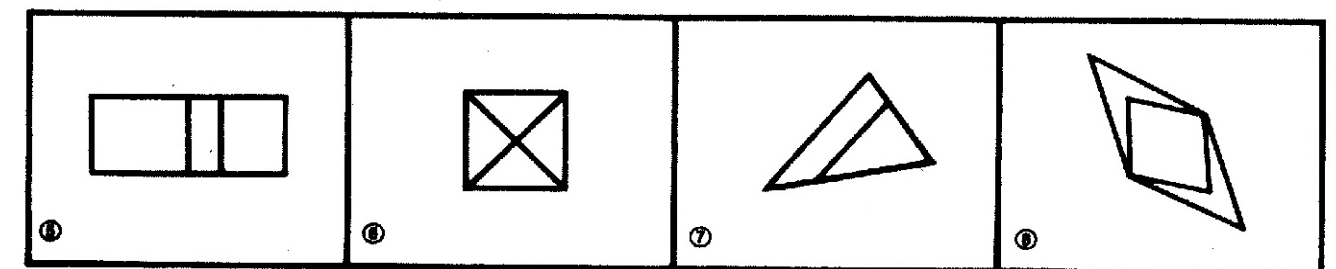
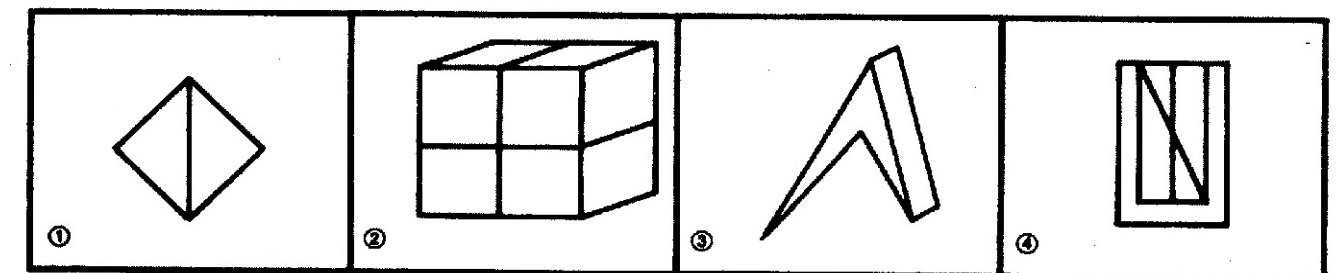
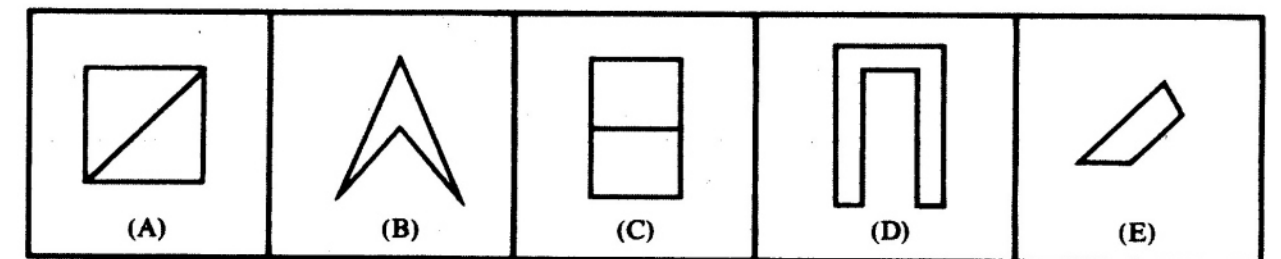


## 32 QUESTIONS 10 MINUTES

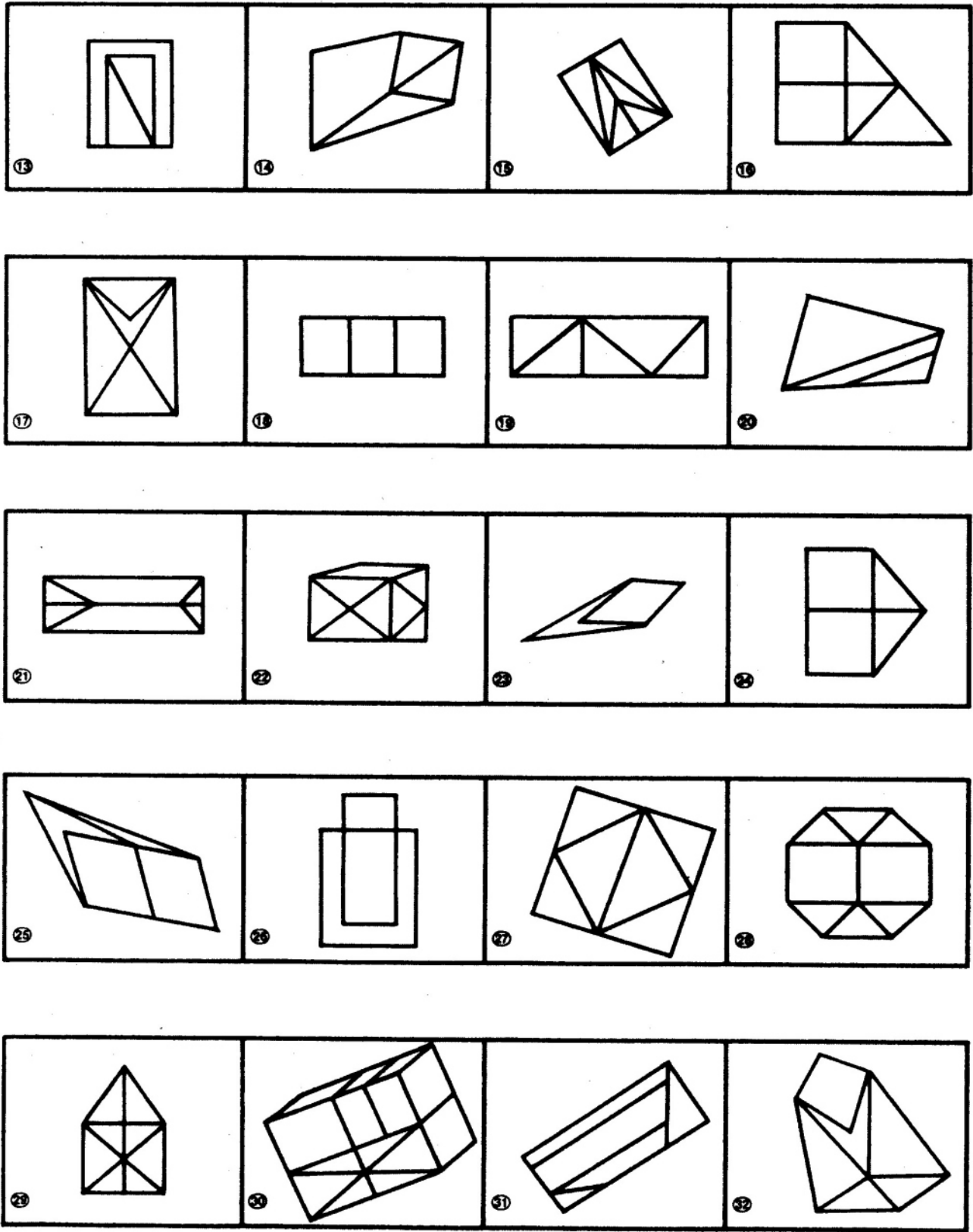
### DIRECTION:

Find the simple figures hidden in these more complex figures. On your answer sheet, blacken the letter that corresponds to the simple figure you find in each complex figure below.

Simple figures for questions 1 to 32





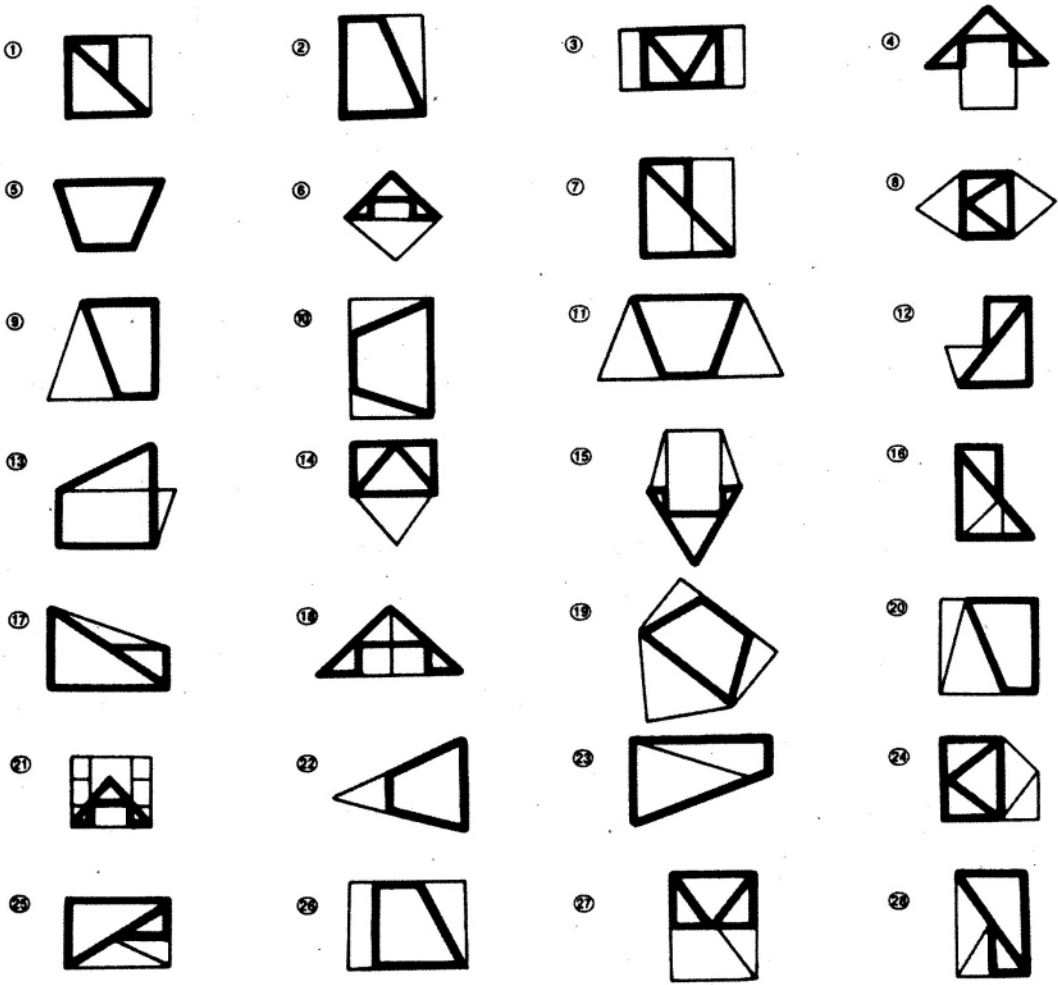


# HIDDEN FIGURES TEST I

## Correct Answers

- |      |       |       |       |
|------|-------|-------|-------|
| 1. B | 9. D  | 17. B | 25. B |
| 2. D | 10. C | 18. E | 26. D |
| 3. A | 11. C | 19. C | 27. A |
| 4. E | 12. B | 20. D | 28. B |
| 5. C | 13. D | 21. E |       |
| 6. E | 14. A | 22. C |       |
| 7. B | 15. E | 23. D |       |
| 8. A | 16. B | 24. A |       |

## Explanatory Answers

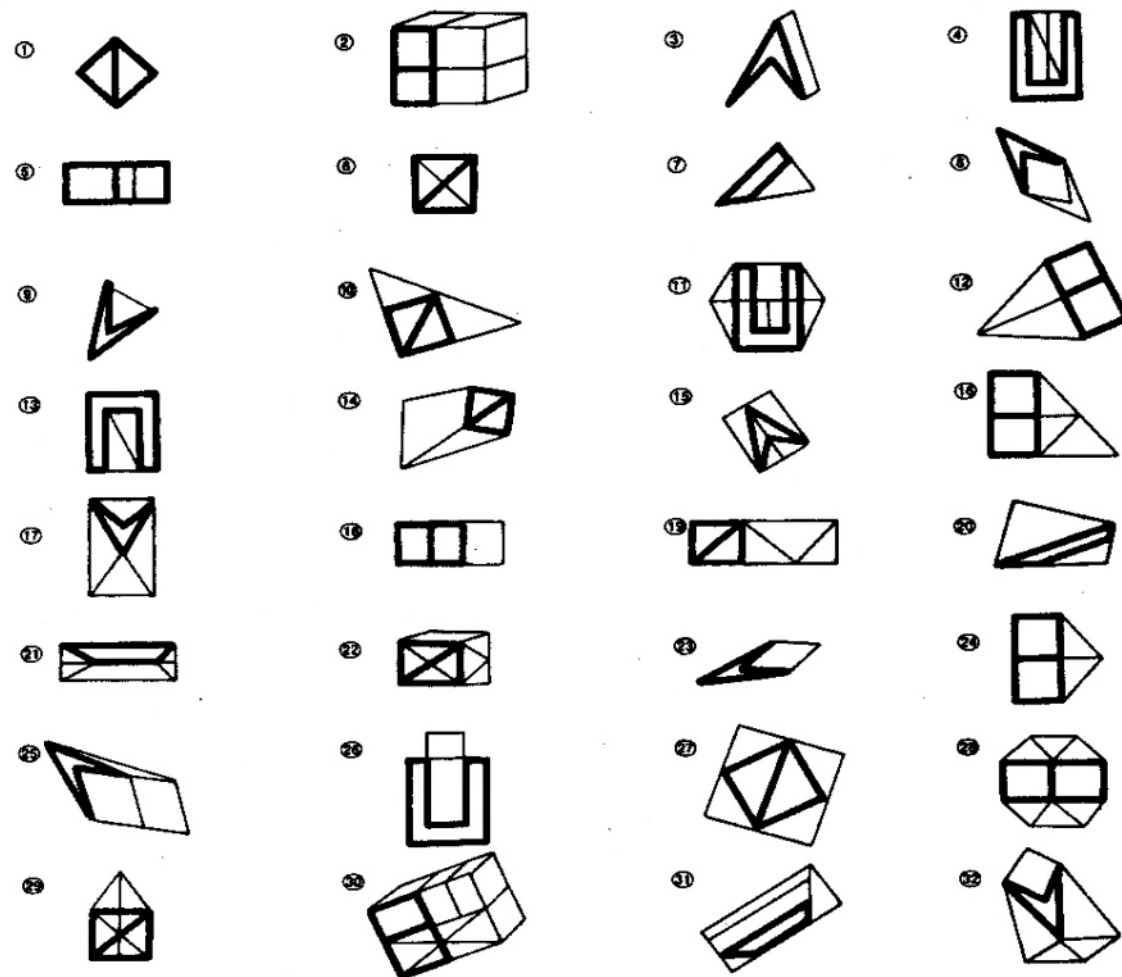


# HIDDEN FIGURES TEST II

## Correct Answers

- |      |       |       |       |
|------|-------|-------|-------|
| 1. A | 9. B  | 17. B | 25. B |
| 2. C | 10. A | 18. C | 26. D |
| 3. B | 11. D | 19. A | 27. A |
| 4. D | 12. C | 20. E | 28. C |
| 5. C | 13. D | 21. E | 29. A |
| 6. A | 14. A | 22. A | 30. C |
| 7. E | 15. B | 23. B | 31. E |
| 8. B | 16. C | 24. C | 32. B |

## Explanatory Answers

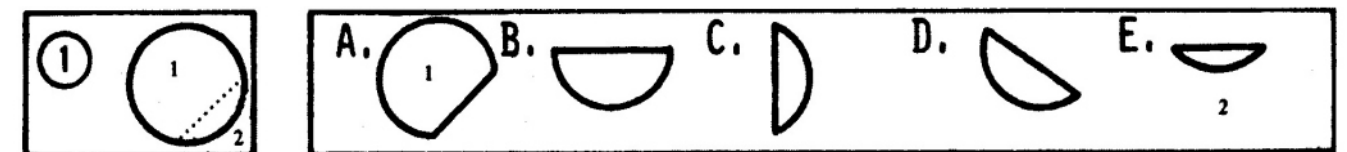


# MATCHING PARTS AND FIGURES

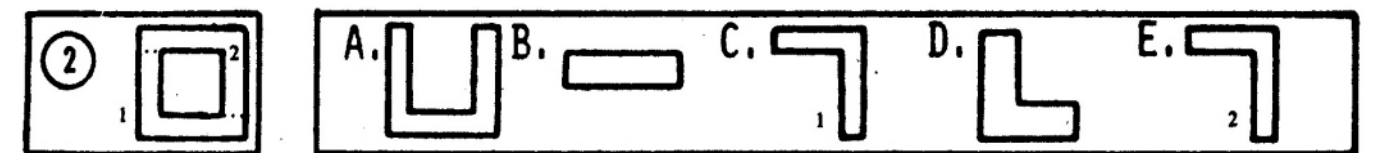
There are several types of questions that test your ability to match parts and figures. Although the directions may vary slightly, each question type requires you to visualize the shape or pattern that can result from fitting together a number of cut-up pieces.

Questions 1 and 2 below illustrate one type of Parts and Figures question. In these questions, you are given one numbered figure and a group of five lettered figures. You are to choose the two lettered figures that, when put together make a figure of the same size and shape as the numbered figure.

Look at question 1. The numbered figure is a circle. Each lettered figure is a part of a circle; however, only alternatives A and E will fit together to make a complete circle of the same size as the given circle.



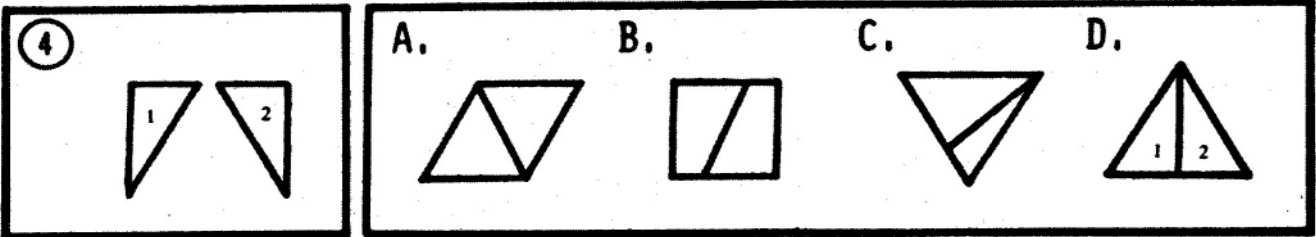
Now try question 2



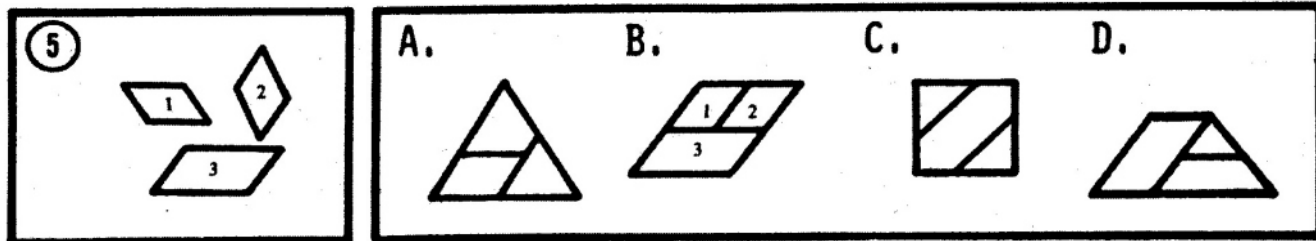
Only alternatives C and E will fit together to form the square within a square illustrated by the given figure.

Questions 4 and 5 reverse the procedure used in the first two questions by giving you numbered pattern pieces and asking you to identify the complete pattern that can be made from the pieces

shown. As in the other question types, you may have to mentally turn over or turn around the pieces given in order to create the pattern.



The only arrangement that can be made of the two pieces shown in question 4 is the one illustrated by alternative D



The three pieces shown in question 5 can be arranged only as indicated in alternative B

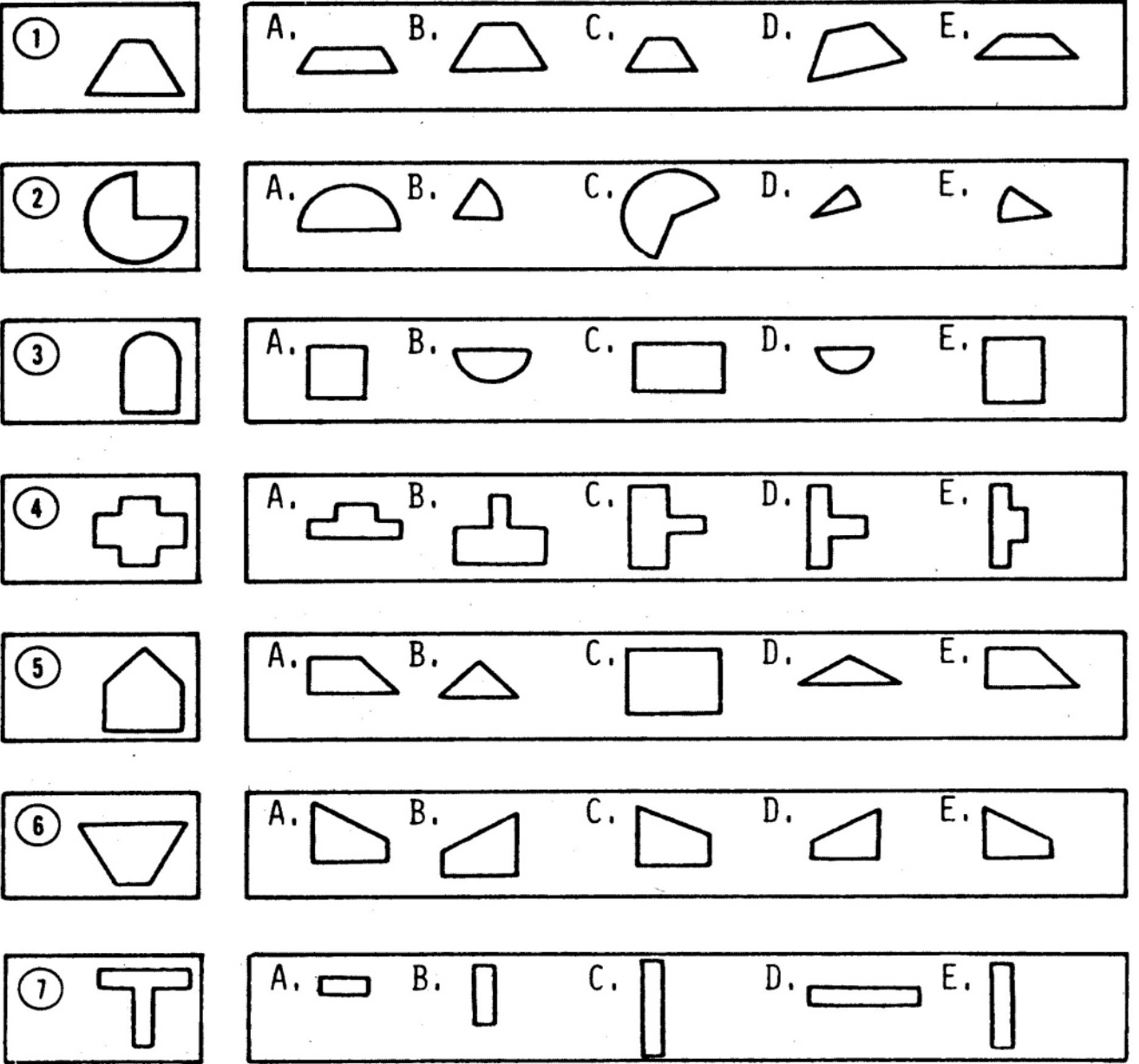
# MATCHING PARTS AND FIGURES TEST I

15 QUESTIONS

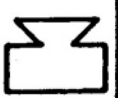
5 MINUTES

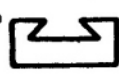


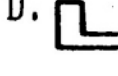
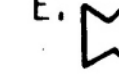
## DIRECTIONS


Each of the questions in this test consists of a numbered figure plus a group of five figures lettered A, B, C, D and E. When two of these lettered figures are put together they make up the numbered figure. Choose the letters of the two figures that, when put together, are most nearly the same as the numbered figure.




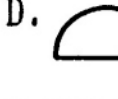
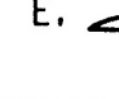






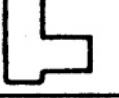
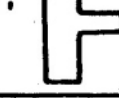
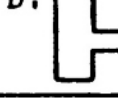
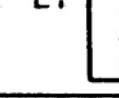
8 


A.  B.  C.  D.  E. 

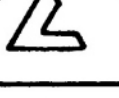

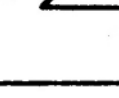
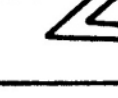
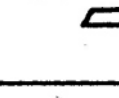
9 


A.  B.  C.  D.  E. 

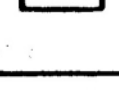
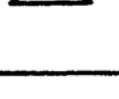
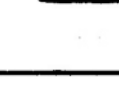
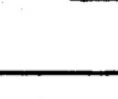
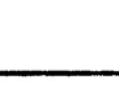
10 


A.  B.  C.  D.  E. 

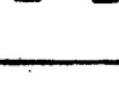


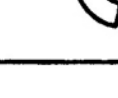
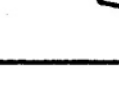
11 

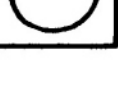
A.  B.  C.  D.  E. 


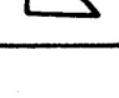
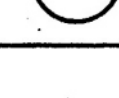
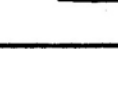
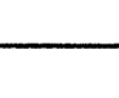
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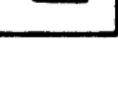
A.  B.  C.  D.  E. 

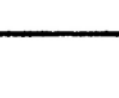
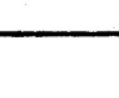



13 

A.  B.  C.  D.  E. 

14 

A.  B.  C.  D.  E. 

15 

A.  B.  C.  D.  E. 

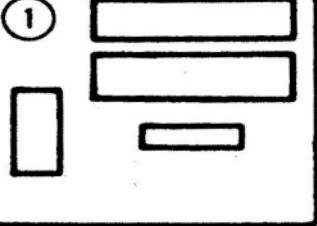
# MATCHING PARTS AND FIGURES TEST II

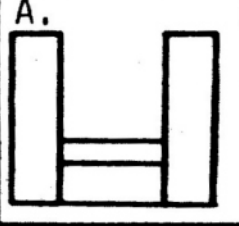
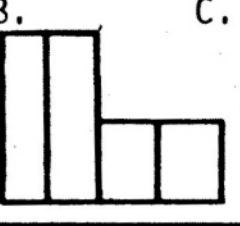
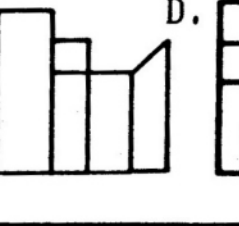
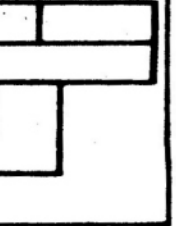
## 9 QUESTIONS

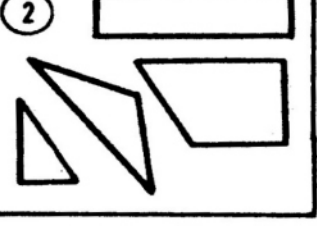
## 4 MINUTES

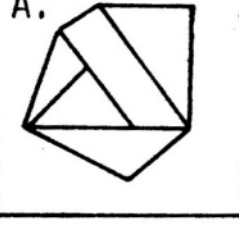
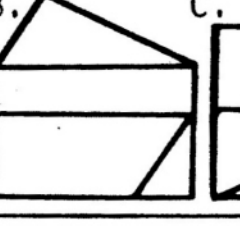
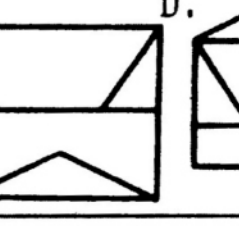
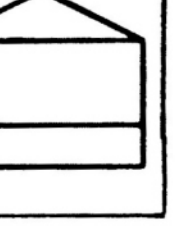
### DIRECTIONS

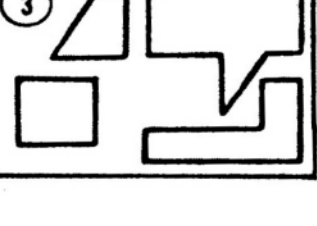
Each of the questions in this test consists of a numbered picture that shows the parts of an object. To the right of the numbered picture are several objects lettered A, B, C, and D. You are to select the lettered object that is made up from the numbered parts.

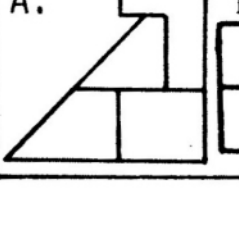
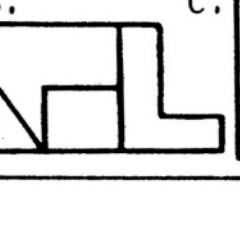
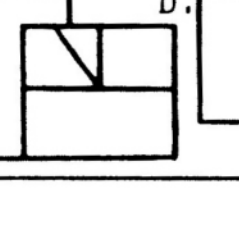
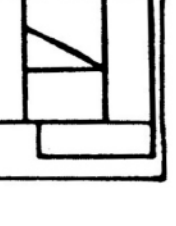
1 

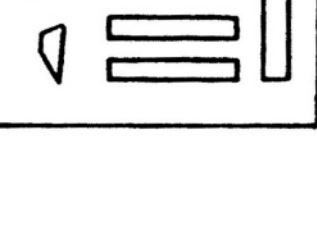
A.  B.  C.  D. 

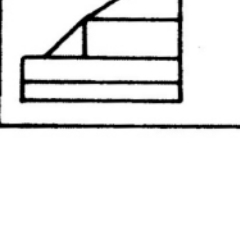
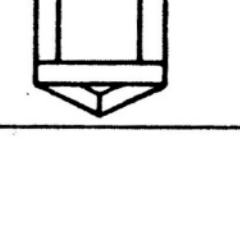
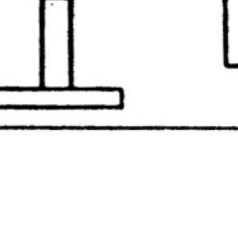
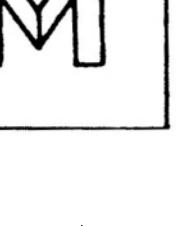
2 

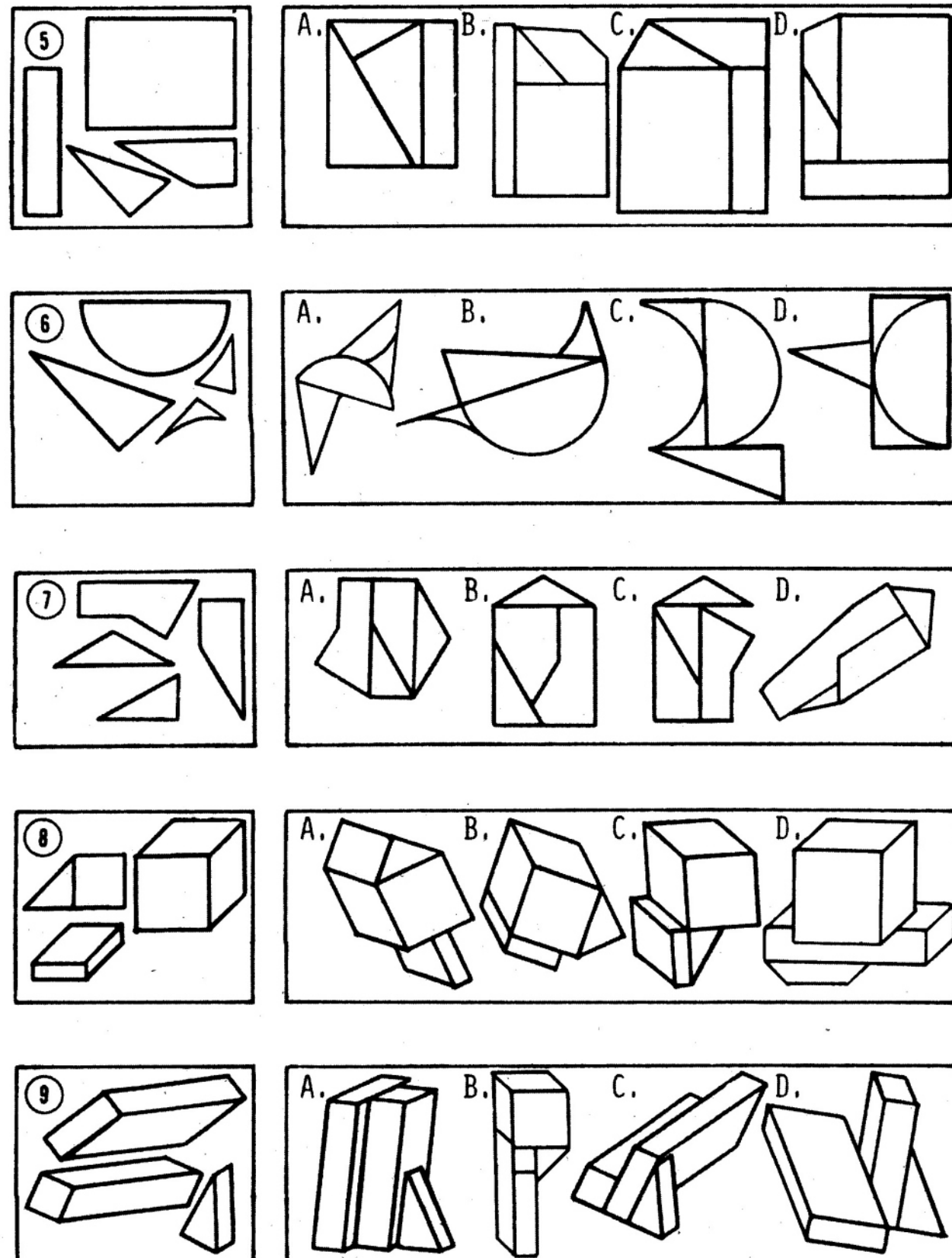
A.  B.  C.  D. 

3 

A.  B.  C.  D. 

4 

A.  B.  C.  D. 

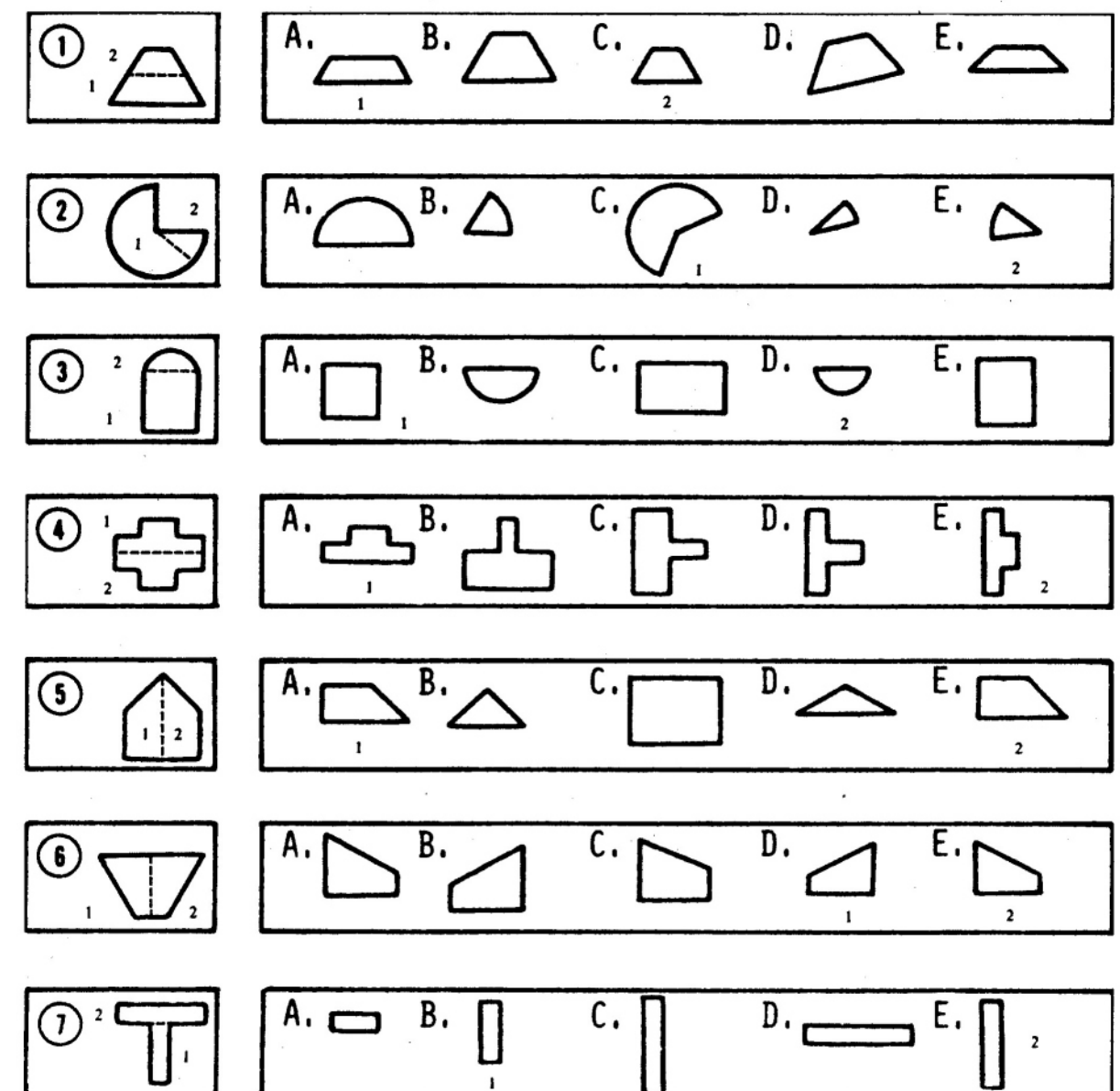


## MATCHING PARTS TEST I

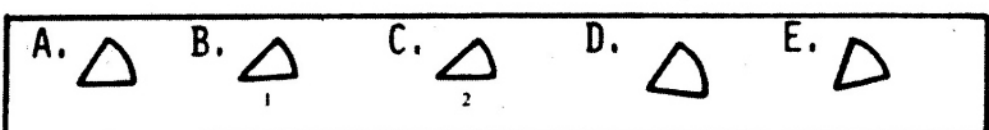
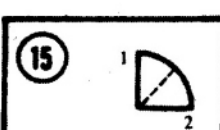
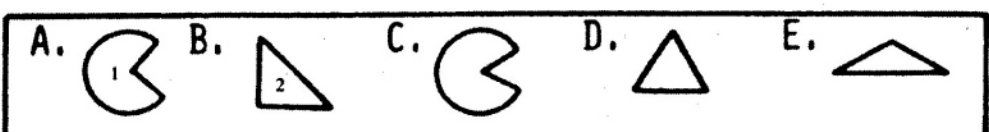
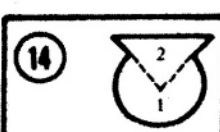
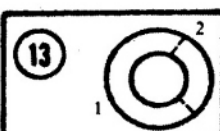
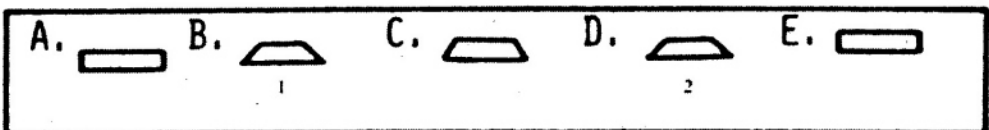
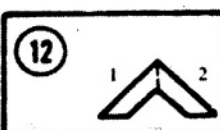
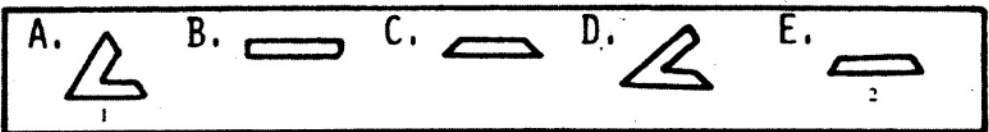
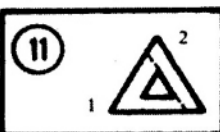
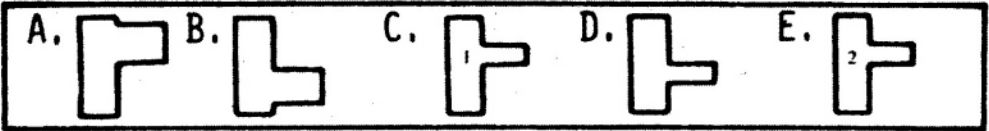
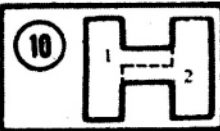
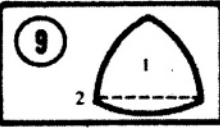
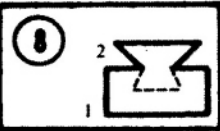
### Correct Answers

- |         |         |         |          |          |
|---------|---------|---------|----------|----------|
| 1. A, C | 4. A, E | 7. B, E | 10. C, E | 13. C, D |
| 2. C, E | 5. A, E | 8. A, C | 11. A, E | 14. A, B |
| 3. A, D | 6. D, E | 9. B, E | 12. B, D | 15. B, C |

### Explanatory Answers





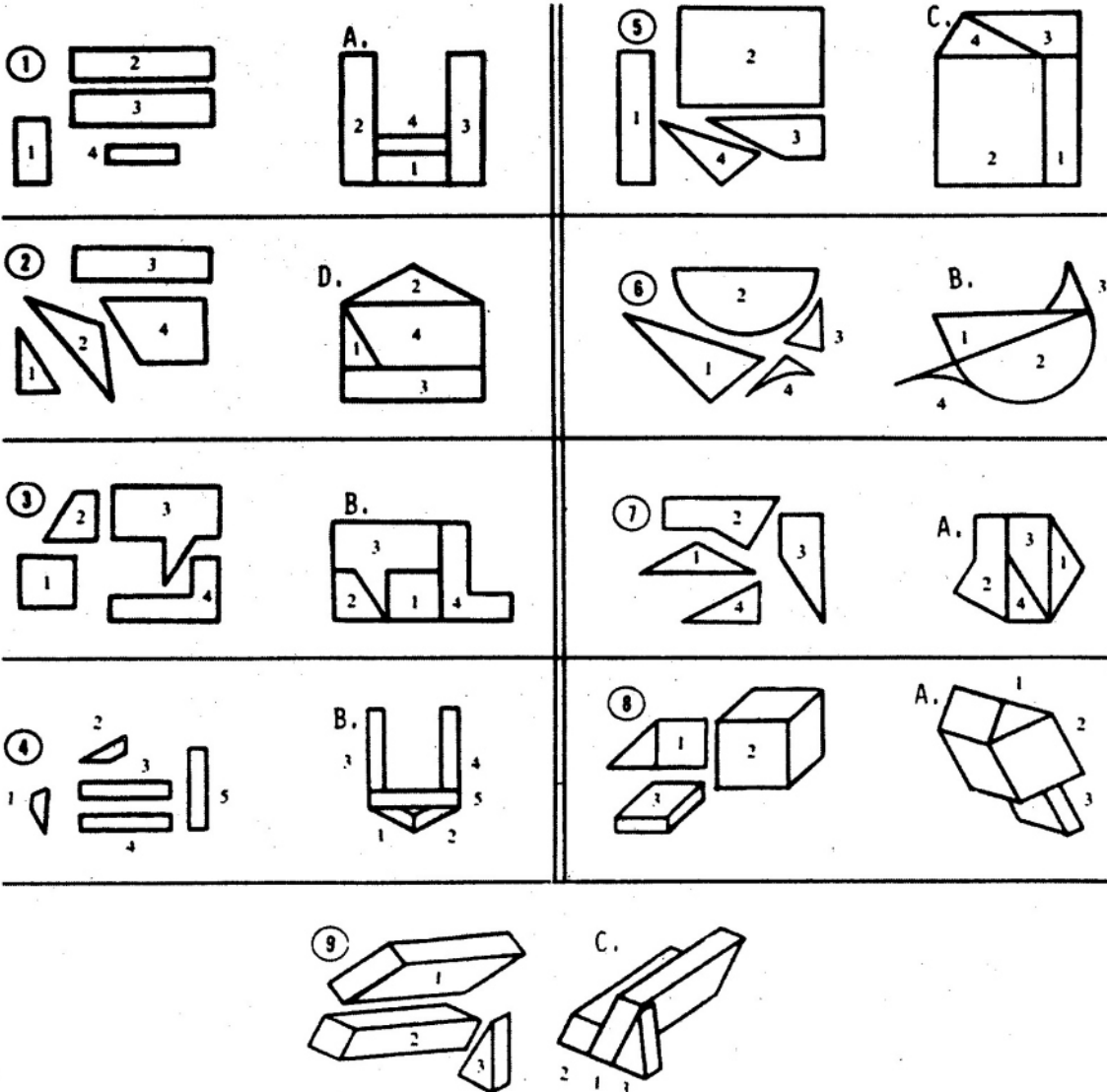


# MATCHING PARTS TEST II

## Correct Answers

- |      |      |      |
|------|------|------|
| 1. A | 4. B | 7. A |
| 2. D | 5. C | 8. A |
| 3. B | 6. B | 9. C |

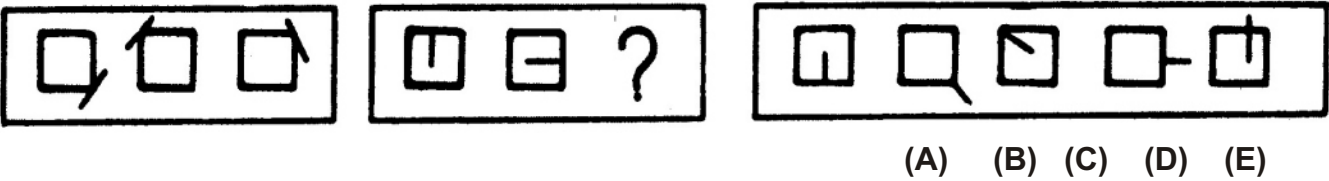
## EXPLANATORY ANSWERS



SYMBOL ANALOGIES

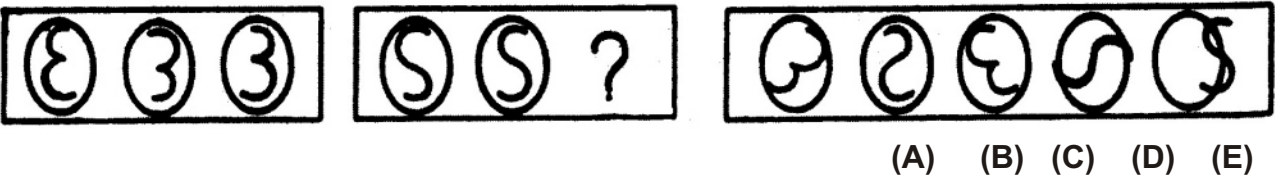
Symbol Analogy questions are intended to measure your ability to find the underlying relationships that exist among groups of symbols. Each questions consists of three boxes of symbols. The first box contains three symbols; the second box contains two symbols and a question mark; and the third box contains five symbols that are lettered (A), (B), (C), (D), and (E). Choose the one lettered symbol from the third box that can best be substituted for the question mark in the second box. In order to do this, identify what it is that the symbols in the first two boxes have in common and the further pinpoint how the that common feature varies between the first and second boxes. The answer must be that symbol that has the feature common to all the symbols in the series and yet maintains the same variation fo that symbol as exhibited by the other two symbols in the second set.

TWO SAMPLE QUESTIONS EXPLAINED



The common characteristic of this series is that each symbol consists of a square and a line that touches the square. The variation that distinguishes the symbols in the first set from those in the second set is the placement of the line in relation to the square. In the first set of symbols, the lines are

tangent to one corner and outside each square. In the second set, the lines are perpendicular to one side and completely within each square. Only alternative (A) maintains this pattern.



The common feature of this series is that all of the symbols are made up of similar curves enclosed within ovals. In the first set of symbols, two of the enclosed figures face in the same direction and one is reversed. Since the second set contains two

enclosed figures facing in the same direction, the missing figure must be an oval that contains a figure that is the reverse of the two figures shown in the second set of symbols. Alternative (B) is the correct choice.

The following list will help you spot the common features and their variations which are likely to turn up in Symbol Analogies questions.

COMMON FEATURES	VARIATIONS OF THE COMMON FEATURE
Lines that divide a figure	Equal or unequal divisions
Lines that form angles	Acute, obtuse, or right angles
Direction of lines	Vertical, horizontal, or slanted pointed up or pointed down
Type of line	Solid or broken Curved or straight All the same, some different, or all different
Number of lines	2, 3, 4, etc. Same number in each figure or different number in each figure
Relationship among lines	Intersecting or nonintersecting Parallel or not parallel
Relationship of line to figures	Lines inside or outside figures Lines touching or not touching figures
Closed shapes	Formed of straight lines or curved lines
Open figures	Open end up or down, left or right
Direction of figure	Pointed up or down, left or right
Shape of figure	Same shapes or different shapes
Shading of figure	Wholly or partially shaded Shaded with horizontal, vertical, or slanted lines
Size of figure	Small or large Same size or different sizes
Relationship between figures	Touching separate Overlapping, sharing a common side
Figures within figures	Same figures or different figures concentric Figures or not concentric

# SYMBOL ANALOGIES TEST I

10 QUESTIONS  
4 MINUTES

## DIRECTIONS:

Each question consists of two sets of symbols that are analogous to each other. That means that the sets share a common characteristic while they differ in a specific aspect of that characteristic. In each question, the first set contains three symbols and the second set contains two symbols and a question mark. Following the symbol sets are five alternatives labeled A, B, C, D, and E. Choose the one lettered symbol that can best be substituted for the question mark. The correct choice will have the characteristic common to both sets of symbols and yet maintain the same variation of that characteristic as the two symbols in the second set. Correct and explanatory answers follow this test.

①

A B C D E

②

A B C D E

③

A B C D E

④

A B C D E

⑤

A B C D E

⑥

A B C D E

⑦

A B C D E

⑧

A B C D E

⑨

A B C D E

⑩

A B C D E



SYMBOL ANALOGIES TEST I

Correct Answers

1. C

2. D

3. A
4. D

5. D

6. B
7. E

8. A

9. E
10. D

11. E

12. C
13. D

14. C

15. B

Explanatory Answers

1. C

All of the symbols in this series consist of a closed shape and line outside and parallel to the shape. In the first set, there is one line outside each shape and parallel to one side. In the second set, there are two adjoining lines outside each closed shape. These outside lines run parallel to two of the sides of each closed shape. Only figure C follows this pattern.
2. D

Each figure consists of both straight and curved liens, and each is shaded. In the first set, the lines in the shaded area run parallel to the longest straight edge. In the second set, the lines in the shaded area run parallel to the diameter of the semi-circle. Only in alternative D is this pattern maintained.
3. A

each symbol in this series consists of two or more lines. In the first set, each figure has two lines - one straight and one curved. In the second set, each figure has four lines - two straight and two curved. Figure A is the only symbol that can complete the second set.
4. D

All of the figures in this series consist of circles with some part cut out. In the first set, there is first a triangular, then a square, and then a curved cut-out in the circles. In the second set, the cut-outs follow the same pattern, but here there are two cut-outs in each circle. Since the triangular and square cut-outs are shown, the missing figure in the second set must be a circle with two curved cut-outs, as in alternative D.
5. D

All of the figures in this series are essentially arrows, but they differ in the direction in which they point. All of the figures in the first set are pointing down and all of the figures in the second set are pointing up. Therefore, the missing arrow must be alternative D, the only one pointing in the right direction.
6. B

All of the figures in this series are made up of lines that are straight, curved, or a combination of the two. However, each figure in the first set consists of three lines, while each figure in the second set consists of four lines. Only alternative B presents a figure made up of four lines, which is what is needed to complete the second set.

7. E

Each symbol in this series consists of a closed shape, a small dark triangle, and a short line. In the first set, the small dark triangle is outside the closed shape, with the short line opposite and inside the figure. In the second set, the small dark triangle is inside each figure and the short line opposite and outside. Alternative E, which meets both these conditions, is the figure needed to complete the second set.
8. A

All of the figures in this series consist of straight lines that form angles. In the first set, each group of lines forms two acute angles. In the second set, each group of lines forms two right angles. The only alternative that forms two right angles is A.
9. E

The common feature of this series is that each symbol is a cylinder with lines on the outside surface. In the first set, the lines all run perpendicular to the base. In the second set, the lines all run diagonal to the base. Alternative E is the only one that correctly completes the set.
10. D

Each figure in this series consists of four lines - some long and some short. All of the figures in the first set are made up of three long lines and one short line. All of the figures in the second set consist of two long lines and two short ones. Therefore, alternative D is the one that is needed to complete the set.
11. E

The common feature of this series is that each symbol is a rectangle with the line inside it. In the first set, each rectangle has one broken line within in it,. In the second set, each rectangle contains one broken and one solid line. Such a figure is illustrated by alternative E.
12. C

Each figure in this series represents rotation. In the first set, the figures indicate rotation in a clockwise direction, while in the second set, the figures indicate counterclockwise rotation. Figure C, which represents counterclockwise rotation, is the one that is needed to complete the set.
13. D

The symbols in the first set are repeated in the second set, but the ends are closed and opposite segments are shaded. Since the first two symbols from the first set already appear in the second set, it must be a variations of the third symbol that is needed to complete the set. Such a figure is provided by alternative D.
14. C

All of the symbols in this series are teardrops. In the first set, the teardrops overlap. In the second set, the pointed ends touch. The missing figure must be C, which consists of teardrop shapes with points touching.
15. B

The common features of these sets is that each symbol is a closed shape with lines in it. In the first set, the enclosed lines run at right angles to each other. In the second set, each shape is divided in half and the enclosed lines form a herringbone pattern, as in alternative B.



# FIGURE CLASSIFICATION TEST

In Figure Classification Tests, each problem consists of two groups of figure that are labeled 1 and 2. These two groups are followed by five answer figure that are lettered A, B, C, D, and E. For each problem decide what characteristic is common to EACH of the figures in group 1 but appears in NONE of the figure in group 2. Then select the lettered answer figure that has this characteristic. The sample problems that follow should make the directions quite clear.

## THREE SAMPLE QUESTIONS EXPLAINED

	1	2	A	B	C	D	E
I.							
II.							
III.							

In sample problem 1, all the figures in group 1 are pentagons, but none of the figures in group 2 is a pentagon; therefore, C the only pentagon among the answer figures, is the correct choice.

In sample problem II, all the figures in group 1 include a circle, but none of the figures in group 2 includes a circle; so A is the correct answer.

In sample problem III, all the figures in group 1 are shaded, but none of the figures in group 2 are shaded. Therefore, the correct answer is E, the only shaded answer figure.

# FIGURE CLASSIFICATION TEST

25 QUESTIONS  
10 MINUTES

## DIRECTIONS

Each of these problems consists of two groups of figures, labeled 1 and 2. These are followed by five answer figures lettered A, B, C, D, and E. For each problem, decide what characteristic each of the figures in group 1 has that none of the figures in group 2 has. Then select the lettered answer figure that has this characteristic. Correct and explanatory answers follow this test.

	1	2	A	B	C	D	E
1.							
2.							
3.							
4.							
5.							
6.							
7.							

	1	2	A	B	C	D	E	
8.								
9.								
10.								
11.								
12.								
13.								
14.								
15.								
16.								
17.								
18.								

	1	2	A	B	C	D	E
19.							
20.							
21.							
22.							
23.							
24.							
25.							

# FIGURE CLASSIFICATION TEST

## Correct Answers

- |      |       |       |       |       |
|------|-------|-------|-------|-------|
| 1. C | 6. A  | 11. D | 16. C | 21. E |
| 2. D | 7. C  | 12. A | 17. C | 22. B |
| 3. B | 8. D  | 13. E | 18. A | 23. B |
| 4. B | 9. E  | 14. E | 19. E | 24. E |
| 5. D | 10. E | 15. B | 20. B | 25. C |

## EXPLANATORY ANSWERS

### Every figure in Groups I, but no figure in Group II

- 1. C consists of three lines and three dots
- 2. D consists of a single undivided shaded region touching any number of white regions.
- 3. B is a circle with three radii, two solid and one dotted, that form two angles totaling 180°.
- 4. B contains intersections in the middle of its far left and far right vertical lines.
- 5. D has three elements, the first and third being mirror images
- 6. A has exactly one dot to the right of the line
- 7. C has more white area than shaded area
- 8. D has an even number of sides, with the dot outside the figure
- 9. E is asymmetrical if a vertical line is drawn through the centre
- 10. E has one more vertical line than the number of horizontal lines
- 11. D consists of one quadrilateral inside of another quadrilateral
- 12. A has an odd number of elements, with no dot above any line
- 13. E consists of two congruent parts

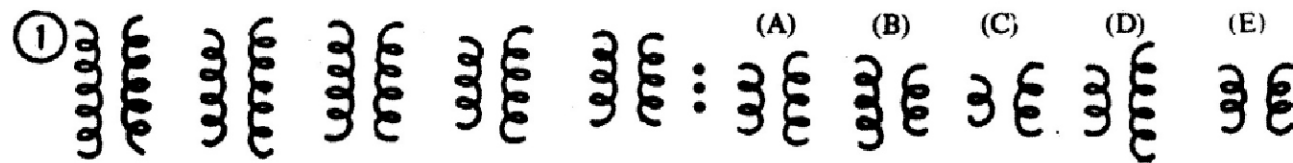
- 14. E has equal areas of while and shaded territory
- 15. B has no vertical lines
- 16. C is a hexagon with one dot inside and one dot outside
- 17. C has an even number of dots
- 18. A has [ at its left end
- 19. E has two elements to the right of the line and one element to the left of it (a dot in a circle together count as two elements)
- 20. B has two rectangles
- 21. E has the black dot above the white dot
- 22. B contains five parts, two of which are dots
- 23. B is a quadrilateral with a line attached to it, extending horizontally, straight up, or diagonally up
- 24. E is a line slanted like this /, with two perpendicular lines attached to it.
- 25. C consists of two shaded regions and two white ones



# SYMBOL SERIES

Symbols Series questions test your ability to spot the relationship governing a group of symbols so that you are able to choose the next term in the series. Each question consists of a series of five symbols on the left half of the page. Next to these are five other symbols labeled (a), (B), (C), (D) and (E). Study the first five symbols to determine what is happening in the series. Then select the one lettered symbol that best continues the series.

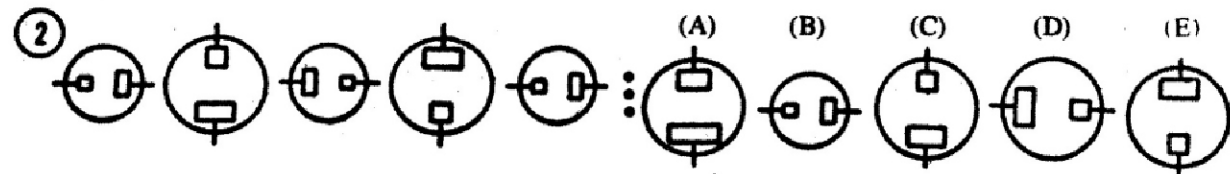
## TWO SAMPLE QUESTIONS EXPLAINED



Each symbol in this series consists of two coils. The symbols differ from one another in the number of loops in each coil. In the first symbol, each coil has five loops; in the second, the left-hand coil has four loops and the right-hand coil has five loops; in the third, each coil has four loops. As this series progresses, first the left-hand coil loses a loop and then the right-hand coil loses one.

Since the fifth symbol in the series has three loops in each coil, the sixth symbol must have two loops in the left-hand coil and three loops in the right-hand coil, as shown in the symbol labeled (A).

The first five symbols in question 2 show an alternation from small to large, with a quarter-turn in a clockwise direction from one symbol to the next.



Therefore, the next term must be a large circle (which eliminates alternative B) with the larger rectangle at the bottom of the circle (which eliminates alternatives D and E). A closer look at alternative (A) shows that the rectangles within this circle are larger than the rectangles in any of the other circles.

alternative (C), which shows a large circle with a small square at the top and a larger rectangle on the bottom.

The best choice for the next term in this series is

## 27 QUESTIONS

12 MINUTES

