

NUMERICAL AND MENTAL ABILITY TEST

1. If $y = 3 + 2\sqrt{2}$, find the value of $\sqrt{2}(y^2 - y^{-2})$. (approx.)
 (1) 96 (2) 24
 (3) 48 (4) 28
2. There are three bells which ring at regular intervals of 30, 45 and 60 seconds respectively. If all of them ring together at 1 : 00 PM, at what time will they ring together again?
 (1) 1 : 03 PM
 (2) 1 : 24 PM
 (3) 1 : 30 PM
 (4) 1 : 12 PM
3. When a number is divided by 8, the remainder is 3. What is the remainder when the same number is divided by 2?
 (1) 0 (2) 3
 (3) 1 (4) 2
4. What is the downstream speed of a boat when the speed of the boat in still water is 10 m/s and the speed of the river is 20% of the speed of the boat?
 (1) 8 m/s (2) 12 m/s
 (3) 4 m/s (4) 9 m/s
5. A certain sum of money at simple interest amounts to Rs. 1260 in 2 years and Rs. 1350 in 5 years. Find the approximate rate of interest.
 (1) 4.50% (2) 2.50%
 (3) 1.50% (4) 3.50%
6. A sum of Rs. 250000 is deposited for 3 years compounded annually at 4%, 5% and 6% for the first, second and third year respectively. What will be the amount at the end of the three years?

- (1) Rs. 301,400
 (2) Rs. 256,590
 (3) Rs. 325,680
 (4) Rs. 289,380
7. If 50% of a number is equal to another number, their ratio will be _____.
 (1) 4 : 3 (2) 2 : 1
 (3) 4 : 1 (4) 3 : 2
8. What is the remainder when 201 202 203 204 205 206 260 is divided by 9?
 (1) 4 (2) 2
 (3) 8 (4) 6
9. What percentage must be added to the cost price of goods so that a profit of 20% is obtained after allowing a discount of 10% on the marked price?
 (1) $33\frac{1}{3}\%$ (2) 50%
 (3) 70% (4) 25%
10. The average age of a group of n people increases by 12 if Tarun and Arun are excluded. The total age of two new people, Rohit and Mohit, is the same as that of Tarun and Arun. If Rohit and Mohit are added to the group of n people, the average age decreases by 4. Find n ?
 (1) 4 (2) 5
 (3) 6 (4) 2
11. What is the largest number that can exactly divide 52, 65 and 143?
 (1) 11 (2) 3
 (3) 15 (4) 13

12. There are two similar triangles. The sides of the first triangle are 2 cm, 3 cm and 4 cm. The perimeter of the second triangle is 81 cm. Find the corresponding sides of the other triangle (in cm).
 (1) 18, 36, 27 (2) 27, 18, 36
 (3) 18, 27, 36 (4) 36, 27, 18
13. Anand and Ravi can complete a piece of work in 12 days. Ravi and Chinmay can complete the same work in 16 days while Chinmay and Anand can complete the same work in 48 days. In how many days can Ravi alone complete the work?
 (1) 18 days (2) 46 days
 (3) 10 days (4) 16 days
14. Himanshu received a coded message : CHANGTANG-SANG, which he has to decipher by forming a single word. He knows the correct positions of all the A's. Find the probability that he is able to decode the message correctly?
 (1) 0.50 (2) $\frac{3!3!}{10!}$
 (3) $\frac{1}{3!}$ (4) $\frac{36}{10!}$
15. If $\left(\frac{3}{5}\right)^x = \frac{81}{625}$, then what is the value of x ?
 (1) 16 (2) 256
 (3) 0 (4) 32
16. A train running at a speed of 60 km/hr takes 24 seconds to pass a tunnel. Also it takes 15 seconds to pass a man walking at 6 km/hr in the same direction in which the train is going. Find the length of the train and the length of the tunnel.

(1) 200 m and 230 m

(2) 225 m and 175 m

(3) 225 m and 150 m

(4) 180 m and 150 m

17. Two friends X and Y are 500 km apart. X takes his car and moves towards B at a speed of 60 km/hr and Y takes his Bike and moves towards A at 50 km/hr. If X started at 9 am and Y started an hour later, at what time do they meet?

(1) 3 pm (2) 12 noon

(3) 1 pm (4) 2 pm

18. The radius and the height of a cylinder are increased by 50% and 75% respectively. Express the original volume as a percentage of the volume obtained.

(1) 88.75% (2) 25.39%

(3) 28.75% (4) 48.75%

19. On selecting a 3 digit number at random, what is the probability of selecting a number which is divisible by both 5 and 9?

(1) $\frac{2}{15}$ (2) $\frac{1}{45}$

(3) $\frac{7}{90}$ (4) $\frac{3}{45}$

20. Express 0.222... as a fraction.

(1) $\frac{2}{9}$ (2) $\frac{1}{5}$

(3) $\frac{1}{12}$ (4) $\frac{1}{7}$

21. A trader goes to a wholesaler to buy 500 kg of merchandise. The wholesaler has a weighing balance that reads 1200 gm for a kg. Later, the trader sells 5 kg to a customer after marking up his cost price by 25% (without realising that he was cheated by the wholesaler). What is the net gain or loss per cent for the trader (approximately)?

(1) 0% (2) 20% gain

(3) 3% loss (4) 4.17 gain

22. The average of three consecutive numbers is 15 more than one-third the first number. Find the largest number.

(1) 21 (2) 19

(3) 23 (4) 22

23. Amin, Basha and Chaz can do a piece of work in 90, 40 and 12 days respectively. But they decide to work one at a time each day and receive Rs. 240 towards their remuneration. Find the amount each person gets?

(1) Rs. 34, Rs. 64, Rs. 142

(2) Rs. 24, Rs. 74, Rs. 142

(3) Rs. 24, Rs. 54, Rs. 162

(4) Rs. 14, Rs. 64, Rs. 162

24. If March 5, 2012 was Wednesday, what was the day on November 5, 2014?

(1) Saturday (2) Thursday

(3) Wednesday (4) Friday

25. If $\frac{x}{(y+z-x)} = \frac{y}{(z+x-y)} =$

$\frac{z}{(x+y-z)} = r$, then r can not

take any value except

(1) $\frac{-1}{2}$ (2) 1

(3) 1 or $\frac{-1}{2}$ (4) -1 or $\frac{1}{2}$

26. Find the nature of the roots of the equation $3x^2 + 5x + 3 = 0$.

(1) real and imaginary

(2) imaginary

(3) real and unequal

(4) real and equal

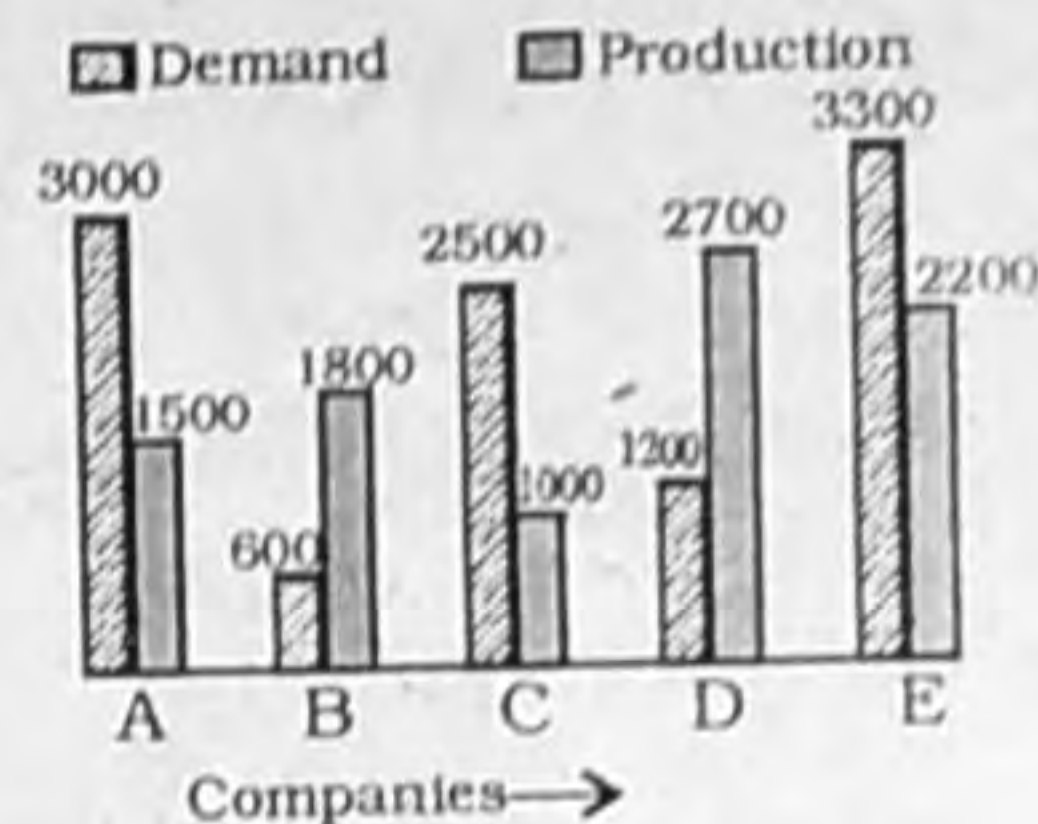
27. In a group of 65 people, 40 people like only cricket and 10 people like both cricket and tennis. Everyone in the group likes at least one of the two games. How many people like only tennis?

(1) 35 (2) 60

(3) 70 (4) 15

Directions (28-30): Study the following graph carefully and answer the questions.

Demand and production of coloured Television sets in October, 2006 by five companies A, B, C, D and E



28. The demand of company B is what per cent of the demand of company C?

(1) 14% (2) 20%

(3) 24% (4) 26%

29. What is the difference between the average demand and average production taking all the five companies together?

(1) 1400 (2) 400

(3) 280 (4) 138

30. What is the respective ratio of average production of companies A, B and C and that of companies D and E?

(1) 85 : 147 (2) 86 : 147

(3) 86 : 149 (4) 87 : 149

31. Two trains are running in the same direction on parallel tracks at 25 mph and 30 mph respectively. If the first train leaves an hour earlier than the second, how long will it take for the faster train to catch up with the slower train?

(1) 5 hrs (2) 6 hrs

(3) 11 hrs (4) 3 hrs

32. Find the percentage of population whose birthday falls on the last day of February in a leap year, assuming the number of births each day is the same.

(1) 0.2732% (2) 2.74%

(3) 0.024% (4) 0.0684%

33. A milkman makes a profit of 20%. If he adds 10% water to the original quantity of milk, what will be his profit per cent?

- (1) 32% (2) 64%
 (3) 128% (4) 100%

34. Find the altitude of a right prism for which the area of the lateral surface is 143 sq.cm and the perimeter of the base is 13 cm.

- (1) 22 cm. (2) 11 cm.
 (3) 16 cm. (4) 15 cm.

35. An archer can hit the target at a certain percentage of accuracy. If the weather gets windy, his accuracy reduces by 20%. If he can hit the target 196 times out of 350 shots when the weather is windy, what is his strike rate with 250 shots under normal conditions?

- (1) 300 shots (2) 200 shots
 (3) 175 shots (4) 250 shots

36. A solution contains vinegar and water in the ratio 5 : 3. What part of the solution should be replaced with water so that the new solution contains vinegar and water in equal quantities?

- (1) $\frac{1}{5}$ (2) $\frac{1}{2}$
 (3) $\frac{1}{3}$ (4) $\frac{1}{4}$

37. A sum of Rs. 312 was divided among a group of 100 students in such a way that each boy got Rs. 3.60 and each girl got Rs. 2.40. Find the number of girls.

- (1) 65 (2) 60
 (3) 40 (4) 35

38. What is the value of $\frac{1}{(1 \times 2)} +$

$$\frac{1}{(2 \times 3)} + \frac{1}{(3 \times 4)} + \dots$$

$\frac{1}{(49 \times 50)}$ upto 2 decimal places?

- (1) 0.97 (2) 0.98
 (3) 0.96 (4) 0.99

39. Shreya completes a work in one day and 6 hours while Shridha completes the same work in 2 days and 12 hours. How long will they take to complete the work if they work together?

- (1) 10 hrs (2) 20 hrs
 (3) 15 hrs (4) 5 hrs

40. If the mode of the following data is 62, find the missing term (x).

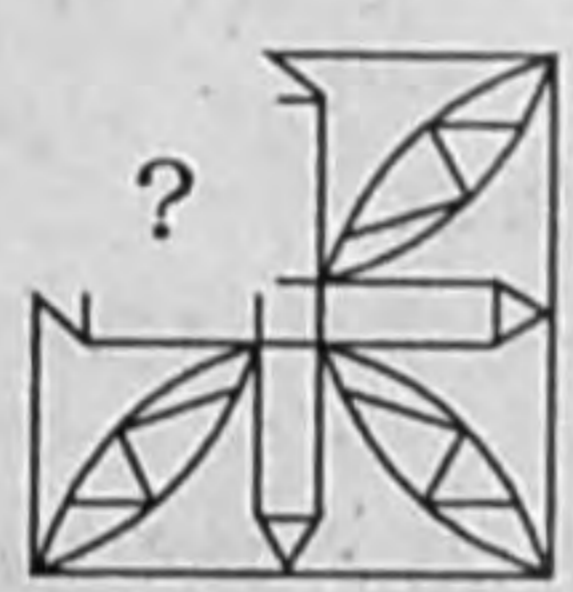
21, 21, 22, 22, 213, 60, 60, 60, 63, 63, 63, 63, 62, 62, 62, 62, 62, x

- (1) 63 (2) 62
 (3) 64 (4) Cannot be determined

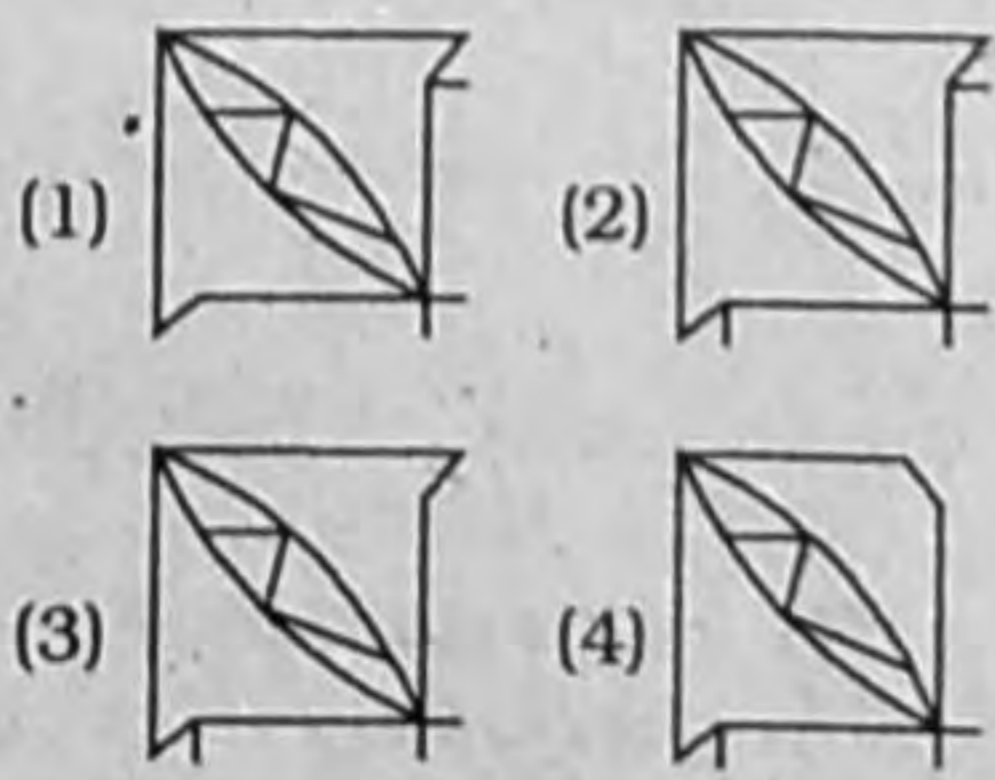
MENTAL APTITUDE TEST - IQ TEST- REASONING

41. A piece of paper is cut as shown in the following figure, in which a part of the picture is missing. From the given answer figures, select the appropriate part which is missing?

Question Figure :



Answer Figures :

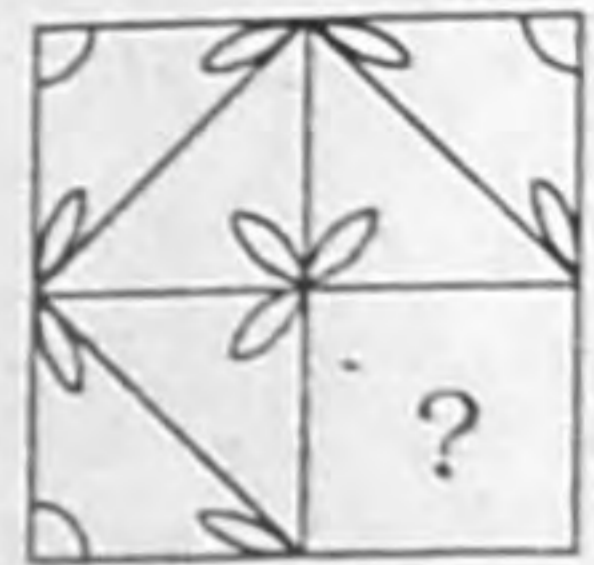


42. K is the mother-in-law of P. P is married to S. K has only one daughter. L is the daughter of P. How is S related to K?

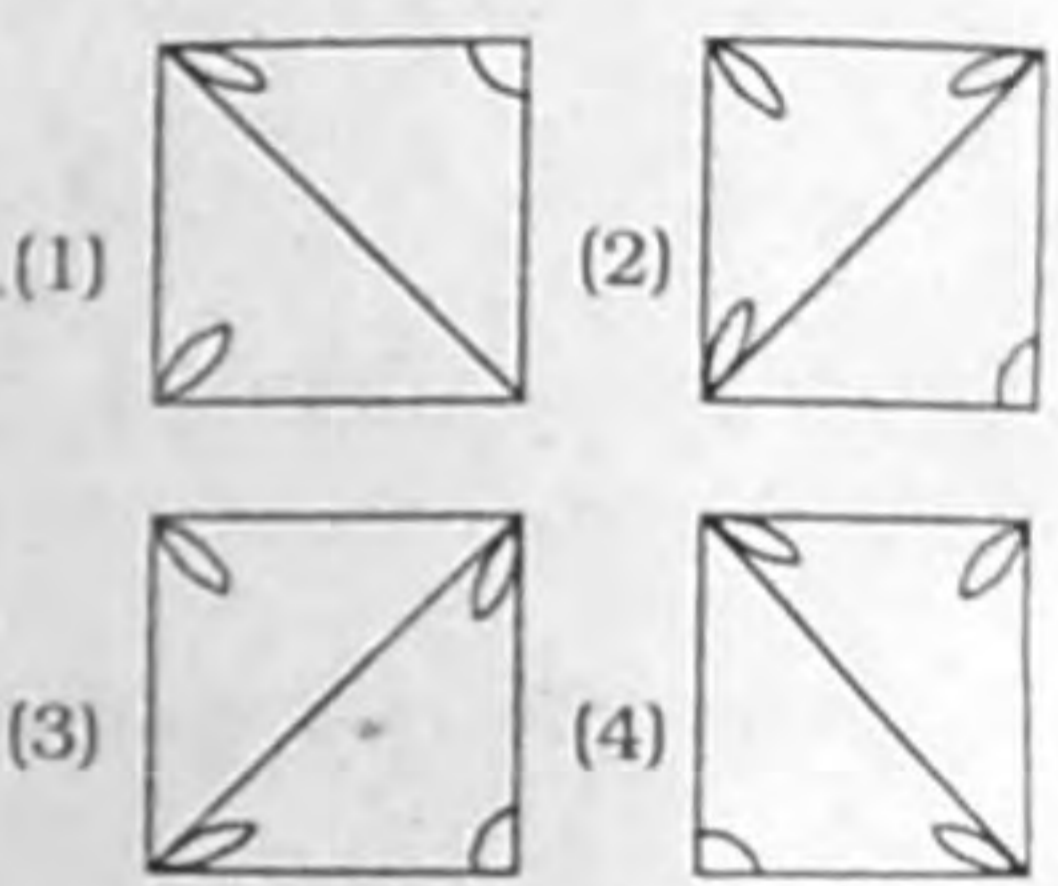
- (1) Daughter
 (2) Son-in-law
 (3) Son
 (4) Mother

43. A piece of paper is cut as shown in the following figure, in which a part of the picture is missing. From the given answer figures, select the appropriate part which is missing?

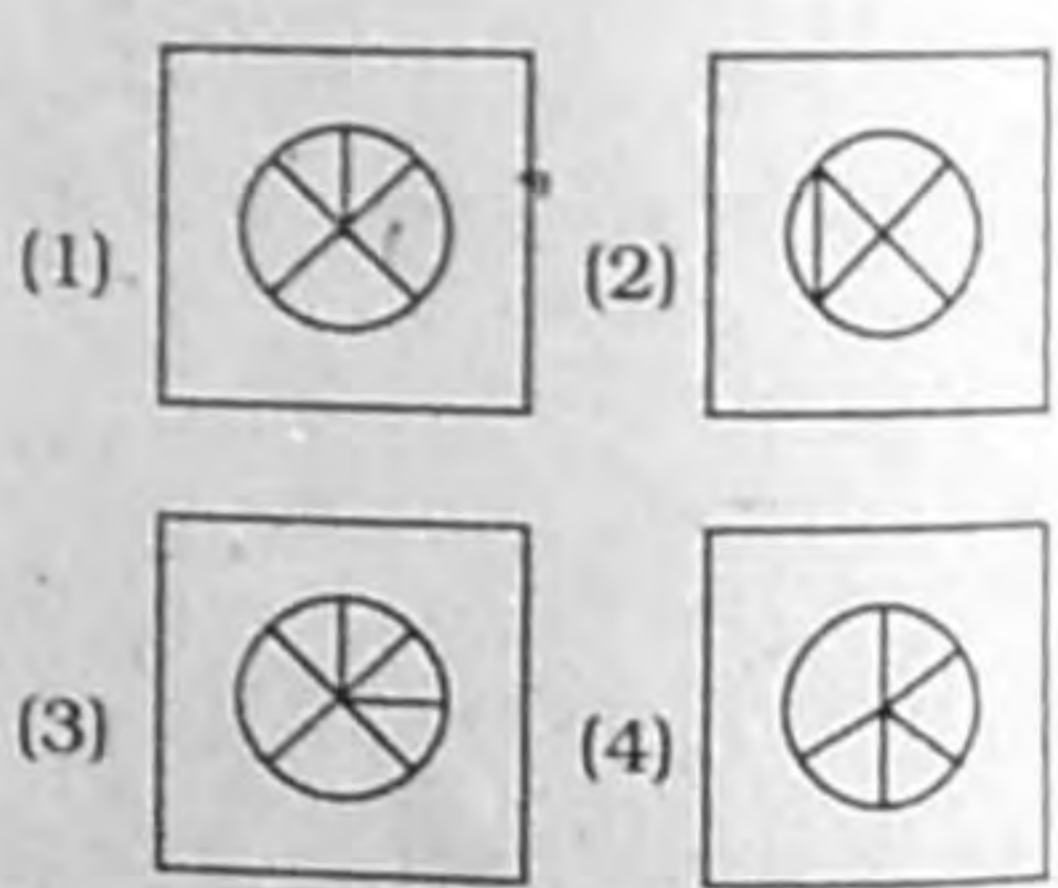
Question Figure :



Answer Figures :



44. Select the option which is different from the other given alternatives.



45. Select the option which is different from the given alternatives

- England, New Zealand, Wales, Scotland
 (1) Wales
 (2) Scotland
 (3) England
 (4) New Zealand

46. Read the following Statement and answer which of the following arguments is strong.

Statement :

Should medical entrance test be made compulsory ?

Arguments :

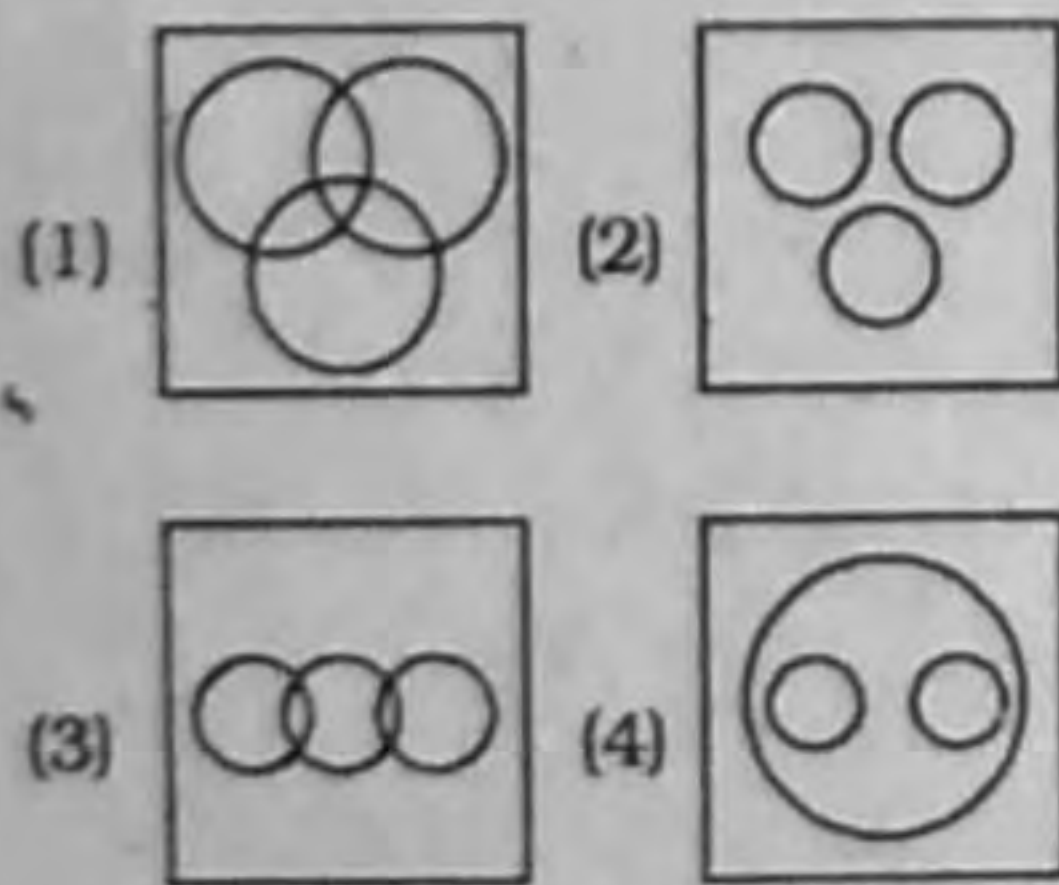
- I. Yes. We have to ensure high quality of medical education to meet the demands of rapidly advancing medical field.
- II. No. This will keep medical education out of the reach of large number of rural and urban deprived children.

- (1) Neither Argument I nor II is strong
- (2) Only Argument II is strong
- (3) Only Argument I is strong
- (4) Both Arguments I and II are strong

47. In a certain code language, the word 'HEAD' is written as 'IFBE' and 'IRON' is written as 'JSPO'. How is the word 'JANE' be written in that code?

- (1) KBOF (2) BFOB
- (3) KOBF (4) KBFO

48. Which of the following diagrams represents the relationship among Nucleus, Protons, Neutrons



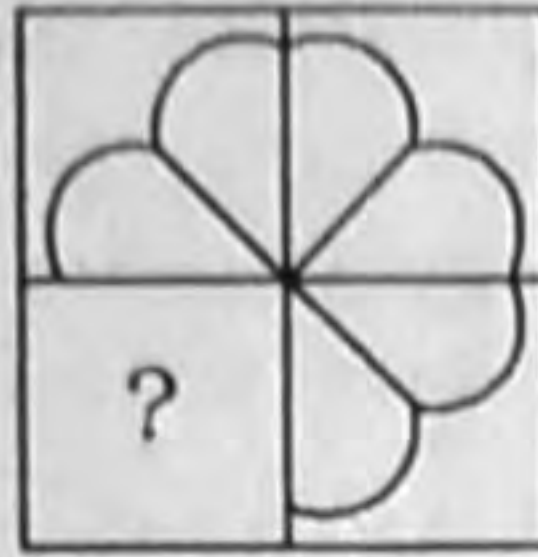
49. Select the relative word for the second pair from the given options which will replace the question mark (?) following the same relation as in the first pair.

CHURCH : TEMPLE :: CEMETERY : ?

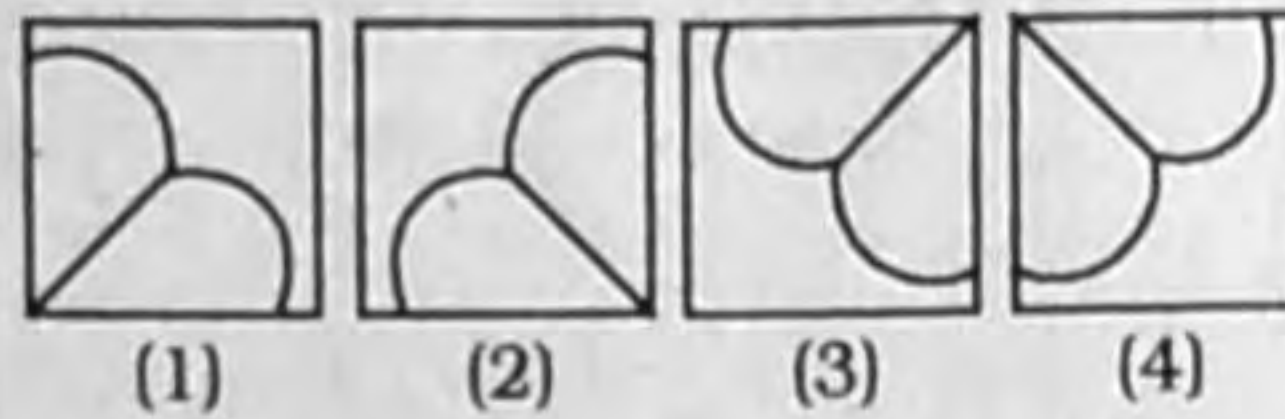
- (1) CREMATORIUM
- (2) CORPSE
- (3) MORTUARY
- (4) MORGUE

50. A piece of paper is cut as shown in the following figure, in which a part of the picture is missing. From the given answer figures, select the appropriate part which is missing ?

Questions Figure :



Answer Figures :



51. The question given below consists of a statement followed by two assumptions numbered I and II. You have to assume everything in the statement to be true and then consider the two assumptions together and decide which of them logically follow(s) beyond a reasonable doubt from the information given in the statement.

Statement :

Good teachers develop good students.

Assumptions :

- I. Strict teachers give quality education.
 - II. Students like knowledgeable teacher.
- (1) Only Assumption II is implicit.
 - (2) Only Assumption I is implicit.
 - (3) Neither assumption I nor II is implicit.
 - (4) Both assumptions I and II are implicit.

52. Find the odd man out from the given alternatives.

- 95 - 15, 185 - 30, 305 - 50, 160 - 25

- (1) 95 - 50 (2) 305 - 50
- (3) 160 - 25 (4) 185 - 30

53. The question below consists of two statements labelled I and II. You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements and give your answer.

Question : How is the man in the photograph related to Arjun ?

- I. Pointing to the photograph, Arjun said, "He is the father of my father's wife's only daughter-in-law's daughter".
- II. Pointing to the photograph, Arjun said, "He is the husband of my sister's paternal grandmother's husband's one and only daughter-in-law".

- (1) Data in either statement I alone or II alone are sufficient to answer the question
- (2) Data in Statement II alone is sufficient to answer the question.
- (3) Data in both Statements I and II together are not sufficient to answer the question.
- (4) Data in Statement I alone is sufficient to answer the question.

54. Pointing at a lady in a photograph, a man said, "She is niece of my only son". How is the man related to that lady ?

- (1) Paternal grandfather
- (2) Brother-in-law
- (3) Maternal grandfather
- (4) Uncle

55. K T O * M A C \$ T V @ S L G # U D P ! L V

A Series is formed based on the sequence given above. What should come in place of question mark (?) in the series ?

- O * M, C \$ T, @ S L, # U D, ?
- (1) D P ! (2) U D P
- (3) P I L (4) I L V

56. Latha starts from point A and walks for 2 km towards North, then turns to her right and walks for 2 km, then again turns to her right and walks for another 2 km. In which direction is she facing now ?

- (1) West (2) South
(3) North (4) East

57. A person starts from his home for collecting money from various shops A, B, C, D and E. After collecting money from shop A, he reaches shop B which is 12 m to the west of shop A. Then he took a left turn to reach shop C which is 5m from shop B. Again he took two consecutive left turns, where he gets to go through the mid-point of shop A and shop B. Finally he reaches the shop E which is 3m North from the mid-point of shop A and shop B.

What is the distance between shop C and shop E ?

- (1) 8 m (2) 11 m
(3) 10 m (4) 14 m

58. The question below consists of two statements labelled I and II. You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements and give your answer.

Question : What is the distance between the points A and D ?

- I. Point A is 8 km to the west of point B, which is 7 km to the North of point C.
II. Point A is 5 km to the North East of point D. Point C is 7 km to the South of Point B.

- (1) Data in both Statements I and II together are sufficient to answer the question.
(2) Data in Statement I alone is sufficient to answer the question.

(3) Data in Statement II alone is sufficient to answer the question.

(4) Data in both Statements I and II together are not sufficient to answer the question.

59. Read the following Statement and answer which of the following arguments is strong.

Statement : Should computer knowledge be made compulsory for all school students ?

Arguments :

- I. Yes. India is aiming at digitalising its villages and starting computer education at school level will facilitate this.
II. Yes. This will help the youth to be better equipped to seek jobs as computer knowledge is considered as an essential skill.
(1) Only Argument I is strong
(2) Only Argument II is strong
(3) Neither Argument I nor II is strong
(4) Both Arguments I and II are strong

60. Find the odd man out from the given numbers.

32, 498, 108, 256

- (1) 108 (2) 256
(3) 498 (4) 32

61. What will come in place of the question mark in the following letter series ?

BDF, GIK, ?, QSU, VXZ

- (1) LNP (2) XZU
(3) KGI (4) PLN

62. Praveen's house is 300 m away in the South-east direction of Rajiv's house. Joseph's house is 300 m away in the North east direction of Rajiv's house. Gopal's house is 300 m away in the North west direction of Joseph's house. Kavın's house is located 300 m away in the South-west direction of Gopal's house.

What is the position of Kavın's house in relation to that of Praveen ?

- (1) South-east
(2) South-west
(3) North-west
(4) North-east

Directions (63-65) : Following are the conditions for the selection of Head Coach for Indian Cricket Team. The conditions are

1. Candidate should have successfully coached a cricket team of any of the member countries of the International Cricket Council (ICC), at the first class or at the international level.
2. Candidate should be qualified through a certification/assessment program conducted by any of the full member countries and should currently possess such a valid certification.
3. Communication skills benefiting the coach of an international team are mandatory along with the ability to effectively convey the right message and must demonstrate proficiency in English.
4. Candidate should have an impeccable personal record, devoid of any past or current disputes, with any of the member boards of the ICC or its affiliates.

A person is selected as Head Coach of Indian Cricket team, if he fulfils the above criteria except,

- A. If the candidate does not fulfil anyone of the criteria and his name is asked to be included by all of the 3 cricket Advisory committee members then he can be selected as Head Coach.
B. Candidate doesn't have any coaching experience, but he was a captain of International Cricket Council (ICC) world cup winning team then he may be referred to the Board of Control for Cricket in India (BCCI) secretary.

C. Candidate doesn't have proficiency in English but he is able to communicate in Hindi and other regional Indian Languages then he may be referred to the Cricket Advisory committee members.

63. What is the decision to be taken in his case ?

Jaffer has coached the Indian Railways team in the first class cricket and has the certification of the ICC and is well versed in English communication and he has no records of disputes.

- (1) Data inadequate.
- (2) The candidate is not to be selected.
- (3) The candidate is to be selected.
- (4) Referred to the Cricket Advisory Committee members/BCCI secretary

64. What is the decision to be taken in his case ?

Pandey is a player in Indian team and has no experience in coaching any of the team. But his name is included by all of the 3 cricket advisory committee members.

- (1) Referred to the cricket Advisory Committee members/BCCI secretary
- (2) The candidate is not to be selected.
- (3) Data inadequate.
- (4) The candidate is to be selected.

65. What is the decision to be taken in his case ?

Surya Rahul has coached Mumbai team in the domestic cricket and has the certification of the ICC and he doesn't have proficiency in English but he is able to communicate in Hindi and regional languages.

- (1) The Candidate is not to be selected.
- (2) The candidate is to be selected.

(3) Data inadequate.

(4) Referred to the cricket Advisory committee members/BCCI secretary

66. In the following question, there are two statements followed by two Conclusions. Read the Conclusions and decide which of the Conclusion(s) logically follow(s) the Statements.

Statements :

- No feeling is Joy.
- No gram is quintal.

Conclusions :

- I. No Joy is feeling.
- II. Some gram is quintal.
- (1) Only II follows
- (2) Both I and II follow
- (3) Only I follows
- (4) Neither I nor II follows

Directions (67-69) : Study the following information carefully and answer the given question :

The following is an illustration of input and its rearrangement.

(Numbers wherever they appear are two-digit numbers)

Input : Sold data 19 24 from 92 then 40

Step I : Data sold 19 24 from 92 then 40

Step II : Data 92 sold 19 24 from then 40

Step III : Data 92 from sold 19 24 then 40

Step IV : Data 92 from 40 sold 19 24 then

Step V : Data 92 from 40 sold 24 19 then

Step VI : Data 92 from 40 sold 24 then 19

And Step VI is the last step of the rearrangement of the above input.

67. As per the rules followed in the above steps, which word/number is second to the right of fourth from the right end in the fourth step of the input given below ?

Input : Year 41 stock 48 honest for 93 55

- (1) 93 (2) honest
- (3) 48 (4) stock

68. As per the rules followed in the above steps, how many steps will be required to complete the rearrangement for the input given below ?

Input : Year 41 stock 48 honest for 93 55

- (1) V (2) III
- (3) IV (4) VI

69. As per the rules followed in the above steps, answer the following question.

If Step II of an Input is "highest 70 store paid 35 44 14 there", which of the following will be step VI ?

- (1) There will be such step
- (2) Highest to paid 35 44 store 14 there
- (3) Highest to paid 44 store 35 there 14
- (4) Highest to paid 44 store 35 14 there

70. Surya is the mother of Akhil who has only two daughters Suji and Suvitha. How is Surya related to Suji ?

- (1) Mother
- (2) Grandmother
- (3) Aunt
- (4) Sister

71. If in a certain code language, JEANS is coded as RLXAE, what will be the code for BOUND ?

- (1) CLRXW (2) CLRKY
- (3) CLRKV (4) CLRKW

72. Select the option which is different from the given alternatives.

DUCK, SWAN, CUCKOO, DEER

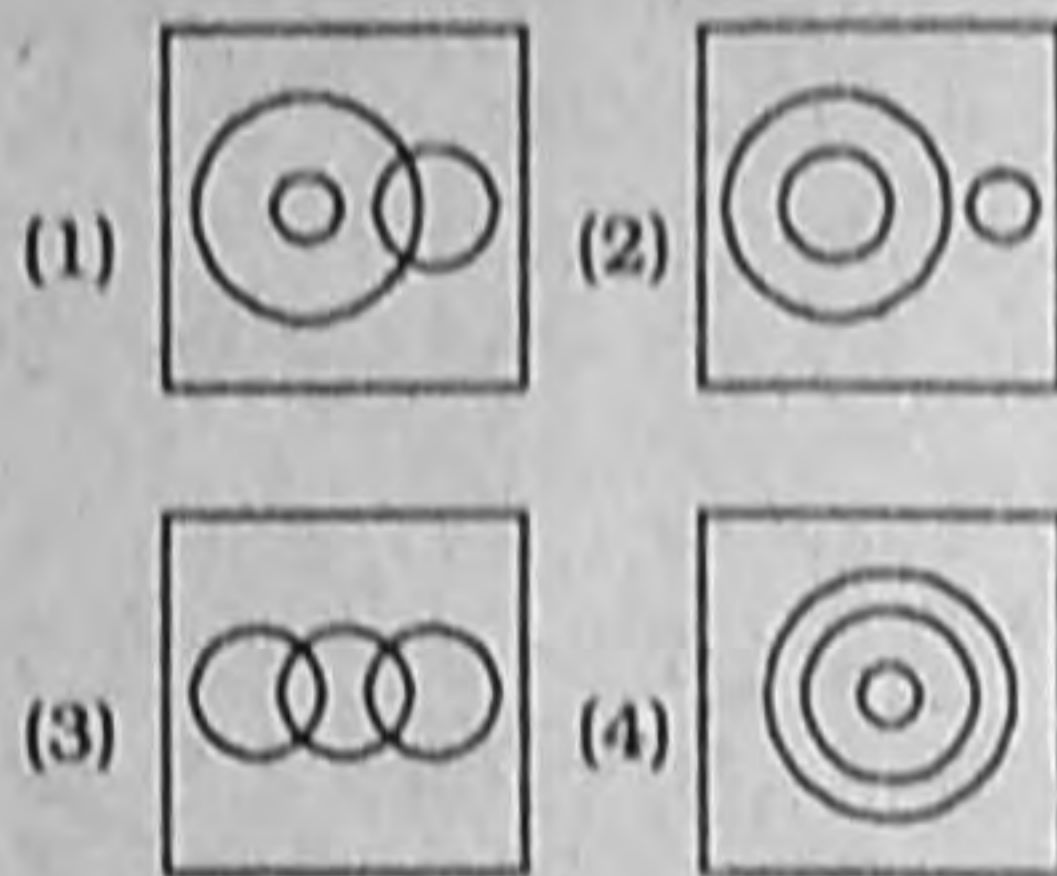
- (1) CUCKOO (2) SWAN
- (3) DUCK (4) DEER

73. What will come in place of the question mark in the following number series ?

6, 7, 20, ?, 34, 19

- (1) 17 (2) 23
 (3) 13 (4) 27

74. Which of the following diagrams represents the relationship among Library, Book, Pages



75. If in a certain code language, **CONDITION** is coded as **PQEWLGRSM**, what will be the code for **SELECTION** ?

- (1) NHVWGHRGM
 (2) NGUWFHRSM
 (3) MHVWGHRGN
 (4) MIVGGURGN

76. If '+' is coded as \$, 'x' is coded as @, 'x' is coded as #, '-' is coded as © and if the value of following equation is 90, find which should replace the question mark in the equation ?

$$16 \text{ © } 4 \$? @ 5 \# 15 \text{ is } 90$$

- (1) 12 (2) 4
 (3) 8 (4) 16

77. In the following question, there are three statements followed by two Conclusions. Read the Conclusions and decide which of the Conclusion(s) logically follow(s) the Statements.

Statements :

- No peanut is dawn.
 Some dawns are cots.
 All cylinders are wheels.

Conclusions :

- I. Some cots are not peanuts.
 II. All dawns are wheels.
 (1) Only II follows
 (2) Only I follows
 (3) Both I and II follow
 (4) Neither I nor II follows

78. The question below consists of two statements labelled I and II. You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements and give your answer.

Question : There are five individuals called P, Q, R, S and T. Who earns the third highest salary amongst them ?

Statements :

- I. T earns more than only one person, who is not P.
 II. R earns more than three persons, Q earns the highest.

- (1) Data in Statement II alone is sufficient to answer the question.
 (2) Data in both Statements I and II together are not sufficient to answer the question.
 (3) Data in both Statements I and II together are sufficient to answer the question.
 (4) Data in Statement I alone is sufficient to answer the question.

79. The question given below consists of a statement followed by two assumptions numbered I and II. You have to assume everything in the statement to be true and then consider the two assumptions together and decide which of them logically follow(s) beyond a reasonable doubt from the information given in the statement.

Statement :

Now a days harassment of women in public is increasing day by day.

Assumptions :

- I. Easy access to media such as internet results in the corruption of the minds of the youth.
 II. Moral education is not properly imparted in the school and college levels.

- (1) Neither assumption I nor II is implicit.
 (2) Only Assumption II is implicit.
 (3) Both assumptions I and II are implicit.
 (4) Only Assumption I is implicit.

80. Select the relative word for the second pair from the given options which will replace the question mark (?) following the same relation as in the first pair.

SUGARCANE : ETHANOL ::
 JATROPHA : ?

- (1) BIODIESEL
 (2) MANURE
 (3) PETROL
 (4) NATURAL GAS