

PART - 1 : MAT

SECTION – (I) : (Maximum Marks: 40)

- This section contains **TWENTY** questions.
- Each question has **FOUR** options (a), (b), (c) and (d). **ONLY ONE** of these four options is correct.
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- If $PET = 6$, $BLACK = 10$, Find the value of $PEPPER$?
 (a) 10 (b) 11 (c) 12 (d) 14
- $A B C D E F G H I J K L M N O P Q R S T U V W X Y Z$.
 Which letter in this alphabet is the eighth letter to the right of the letter and which is tenth letter to the left of the last but one letter of the alphabet?
 (a) X (b) W (c) I (d) H
- If \times stands for 'addition', \div stands for 'subtraction', $+$ stands for 'multiplication' and $-$ stands for 'division', then $20 \times 8 \div 8 - 4 + 2 = ?$
 (a) 80 (b) 25 (c) 24 (d) 5
- The positions of the first and the sixth digit in the number 5109238674 are interchanged. Similarly, the positions of the second and seventh digit are interchanged and so on. Which of the following will be the third digit from the right end after the rearrangement?
 (a) 9 (b) 0 (c) 6 (d) 3
- How many triangles are there in the given figure?

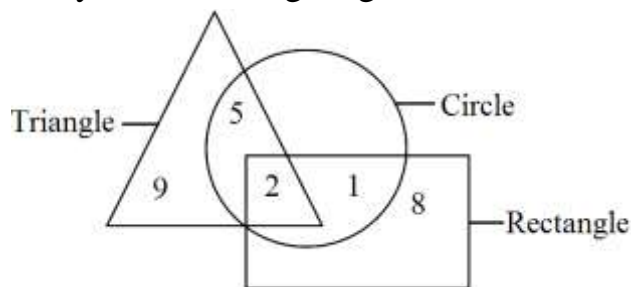


- (a) 5 (b) 6 (c) 8 (d) 10
- Find the missing term in the given pattern:

6	4	2
3	12	2
2	8	?
?	4	

 (a) 1 (b) 2 (c) 8 (d) 9
- If the letters in the word $DOLPHIN$ are rearranged as they appear in English alphabetical order, which of the following letters, will be the fifth from left?
 (a) O (b) D (c) L (d) None of these
- In a certain code, 'GIVE' is written as 'VIEG'. What will be the code of 'DISK'?
 (a) SIDK (b) KISD (c) KDSI (d) SIKD

9. Complete the following series by inserting the number in place of '?':
5, 8, 12, 17, 23, 30, ?
(a) 36 (b) 38 (c) 40 (d) 39
10. In the following relation, the first two elements separated by ':' before '::' possess a relationship. The same relationship is possessed by the two elements after '::'. Choose the most appropriate answer in place of '?' to complete the pattern.
5 : 11 :: 4 : ?
(a) 8 (b) 9 (c) 10 (d) 11
11. If $3 + 5 = 16$; $4 + 3 = 13$; $2 + 7 = 15$; Find the value of $2 + 9 = ?$
(a) 19 (b) 20 (c) 21 (d) 22
12. If the following five names which name will come in the last in a telephone directory?
a) Mahinder
b) Mahender
c) Mahindra
d) Mahendra
e) Mohinder
(a) Mahinder (b) Mahindra (c) Mohinder (d) Mahender
13. Study the following diagram to answer these questions.



Find out the number, that lies inside all the figures.

- (a) 2 (b) 5 (c) 9 (d) No such number is there
14. Multiply 12 by 6 and divide by 3?
(a) 14 (b) 17 (c) 21 (d) 24
15. If $7 - 2 = 10$; $6 - 4 = 11$; $3 - 2 = 6$; Find the value of $2 - 8 = ?$
(a) 11 (b) 12 (c) 13 (d) 14
16. If in a certain code 'INTELLIGENCE' is written as 'ETNIGILLECNE', then how can 'MATHEMATICAL' be written in the same code?
(a) AMHTMETACILA (b) TAMMEHTALAC
(c) HTAMTAMELACI (d) LACITAMEHTAM
17. Read the information carefully and answer the following question carefully.
Kevin, Joseph, and Nicholas are 3 brothers. If the following statements are all true, which of them is the youngest?
 - Kevin is the oldest.
 - Nicholas is not the oldest.

- Joseph is not the youngest.

- (a) Joseph (b) Kevin
(c) Nicholas (d) Both Joseph and Nicholas

18. Find the missing term in the given pattern:

P	T	?
O	Q	S
M	N	R

- (a) U (b) P (c) R (d) T

19. Which of the following is fifth to the right of the twelfth digit from the right end of the below arrangement?

1 8 5 9 4 7 1 2 5 8 3 6 5 9 2 7 6 4 5 2 9 2 6 4 1 2 3 5 1 4 2 8 3

- (a) 3 (b) 1 (c) 2 (d) 7

20. The positions of how many digits in the number 2451479638 will remain same when the first half and the second half of the digits are arranged in ascending order separately?

- (a) Only one (b) Two (c) Three (d) None

PART – 2 : MATHS

SECTION – I : (Maximum Marks: 40)

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21. How many metres of carpet 63 cm wide will be required to cover the floor of a room 14 m by 9 m?
(a) 200 m (b) 210 m (c) 220 m (d) 185 m
22. 4 is added to a number and the sum is multiplied by 5. If 20 is subtracted from the product, the result is equal to 80. The number is
(a) 16 (b) 12 (c) 8 (d) 20
23. Which of the following sets of numbers is in ascending order?
(a) $\frac{13}{15}, \frac{11}{13}, \frac{9}{11}$ (b) $\frac{9}{11}, \frac{11}{13}, \frac{13}{15}$ (c) $\frac{11}{13}, \frac{9}{11}, \frac{13}{15}$ (d) $\frac{13}{15}, \frac{9}{11}, \frac{11}{13}$
24. A two digit natural number is 10 times the sum of its digits. How many values can it assume?
(a) 9 (b) 10 (c) 8 (d) 7
25. The ratio of the length and breadth of a plot is 3 : 2. If the breadth is 40 m less than the length, what is the perimeter of the plot?
(a) 480 m (b) 320 m (c) 400 m (d) 450 m
26. The sum and product of two numbers are 12 and 35 respectively. The sum of their reciprocals is:
(a) $\frac{12}{35}$ (b) $\frac{1}{35}$ (c) $\frac{35}{8}$ (d) $\frac{7}{32}$
27. If a and b are odd numbers, then which of the following is even?
(a) $a + b$ (b) $a + b + 1$ (c) ab (d) $ab + 2$
28. A number has two digits whose sum is 6. On adding 18 to the number, its digits are inter changed. The number is
(a) 23 (b) 24 (c) 26 (d) 25
29. The average rainfall per day for a 15-day period at a hill station is 125 mm per day. If every day from the second day, there is an increase of 5 mm in the rainfall over the previous day, what is the rainfall on the first day of this period?
(a) 95 mm (b) 110 mm (c) 90 mm (d) 105 mm

30. The sides of a triangle are in the ratio $\frac{1}{2} : \frac{1}{3} : \frac{1}{4}$. If the perimeter is 52 cm, then the length of the smallest side is:
- (a) 9 cm (b) 10 cm (c) 11 cm (d) 12 cm
31. A man travelled $\frac{3}{5}$ of his journey by train, $\frac{1}{4}$ by a taxi, $\frac{1}{8}$ by a bus and the remaining 8 km on foot. What is the length of his total journey?
- (a) 82 km (b) 320 km (c) 40 km (d) 90 km
32. The number of all prime numbers less than 50 is:
- (a) 16 (b) 15 (c) 14 (d) 18
33. Which of the following are arranged in descending order?
- (a) $-428, -386, -213, 428, 936$ (b) $-881, -954, -927, -1018, -3261$
(c) $428, -628, -936, -1059, -2361$ (d) none of these
34. If $1.5x = 0.04y$, then the value of $\left(\frac{y-x}{y+x}\right)$ is
- (a) $\frac{730}{77}$ (b) $\frac{73}{77}$ (c) $\frac{73}{770}$ (d) $\frac{703}{77}$
35. A rope makes 140 rounds of the circumference of a cylinder, the radius of whose base is 14 cm. How many times can it go round a cylinder with radius 20 cm?
- (a) 28 (b) 17 (c) 98 (d) 200
36. If $\frac{547.527}{0.0082} = x$, then $\frac{547527}{82} = ?$
- (a) $\frac{x}{10}$ (b) $10x$ (c) $100x$ (d) None of these
37. Which of the following fractions lies between $\frac{3}{5}$ and $\frac{2}{3}$?
- (a) $\frac{2}{5}$ (b) $\frac{1}{3}$ (c) $\frac{1}{15}$ (d) $\frac{31}{50}$

-
38. $\frac{(946+157)^2 + (946-157)^2}{(946 \times 946 + 157 \times 157)} = ?$
- (a) 1 (b) 2 (c) 789 (d) 1103
39. The side of a regular pentagonal shaped metallic wire measures 12 cm. If the wire is stretched out and made into a rectangle of width 12 cm, what will be the area of the rectangle?
- (a) 216 sq.cm (b) 144 sq.cm (c) 324 sq.cm (d) 72 sq.cm
40. When simplified $(2.43 \times 2.43 + 2.43 \times 7.57 \times 2 + 7.57 \times 7.57)$ is equal to
- (a) 10 (b) 100 (c) 101.89 (d) 200.59

PART – 3 : PHYSICS

SECTION – I : (Maximum Marks: 20)

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41. Which one of the following is correct?

(a) $\text{Velocity} = \frac{\text{distance}}{\text{time}}$

(b) $\text{Speed} = \frac{\text{displacement}}{\text{time}}$

(c) $\text{Volume} = \text{length} \times \text{breadth}$

(d) $\text{Acceleration} = \frac{\text{change in velocity}}{\text{time}}$

42. The thousandth part of a metre is known as

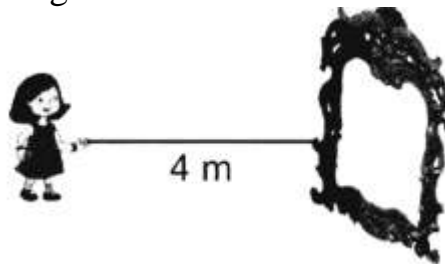
(a) centimetre

(b) millimetre

(c) kilometre

(d) None of these

43. A girl is 4 m away from the plane mirror. If she moves few steps closer to the mirror, what will happen to the image size in the mirror?



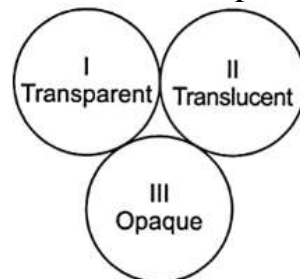
(a) The size of image will decrease.

(b) The size of image will increase.

(c) The size of image will be the same.

(d) Cannot say.

44. Look at the Venn diagram. Which of the following objects described below are most likely to be I, II and III? Choose the correct option.



- I
- (a) Oiled paper
- (b) Glass
- (c) Wax paper
- (d) Mirror

- II
- Air
- Frosted glass
- Clean water
- Diamond

- III
- Cellophane paper
- Wood
- Diamond
- glass

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45. When Abhishek looked at a lighted torch through an object he could see a faint glow, but not the torch. The object is
- (a) Transparent (b) Opaque
(c) Translucent (d) None of these
46. Which of the following physical quantities has light year as its unit?
- (a) Time (b) Intensity of light
(c) Illumination (d) Distance
47. What is the approximate height of a geostationary satellite?
- (a) 6,400 km (b) 12,800 km
(c) 7,200 km (d) 36,000 km
48. To which of the following category does Orion belong?
- (a) Star (b) Planet
(c) Galaxy (d) Constellation
49. Identify the closest star to our solar system.
- (a) Proxima centauri (b) Sirius
(c) Swati (d) Ashwini
50. Which of the following statement(s) is/are correct?
- (a) The motion of ceiling fan is a rotatory motion
(b) The motion of swing is periodic
(c) Both the above are correct
(d) None of the above is correct.

PART – 4 : CHEMISTRY

SECTION – I : (Maximum Marks: 20)

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51. Which one of the following is lighter than water?
- (a) aluminium (b) chalk powder
(c) ice (d) iodine
52. A steel glass containing hot tea becomes hot and is difficult to hold because
- (a) steel is a good conductor of heat (b) steel is a poor conductor of heat
(c) steel is a hard substance (d) steel is a good conductor of electricity
53. Overhead cables carrying electricity are not necessarily covered with plastic or rubber to make them insulated because
- (a) they are very thick
(b) air is bad conductor of electricity
(c) bare wires conduct electricity better than insulated wires
(d) None of these
54. One of the following liquids is immiscible with water. This one is:
- (a) vinegar (b) glycerine
(c) lemon juice (d) kerosene
55. A solution in which more solute can be dissolved at a particular temperature is called
- (a) Saturated solution (b) Super Saturated solution
(c) Unsaturated solution (d) None of these
56. If a piece of fabric burns by giving the smell of charred meat, it is most likely to be made up of:
- (a) cotton (b) jute
(c) silk (d) wool

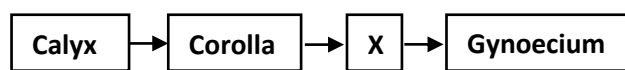
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57. What will happen if a saturated solution of sugar in water is heated?
- (a) It becomes unsaturated. (b) It remains saturated
- (c) Sugar starts separating out (d) It becomes black in colour
58. When we add some salt to water and dissolve it, which of the following statements explains the changes taking place?
- (a) It is a chemical change because a new substance is formed
- (b) It is a chemical change because there is exchange of heat.
- (c) It is a physical change because the original substance can be recovered.
- (d) It is a chemical change because there is a change in colour.
59. Identify the substances which are highly inflammable
- (a) LPG (b) Petrol
- (c) Spirit (d) All of these
60. Which of the following statements is correct regarding the separation of a mixture?
- (a) We have to separate a mixture into its constituents because mixtures are not of much use.
- (b) We have to separate a mixture into its constituents because they have certain useless constituents.
- (c) We have to separate a mixture into its constituents because we require pure components.
- (d) Mixture always contains only one useful component.

PART – 5 : BIOLOGY

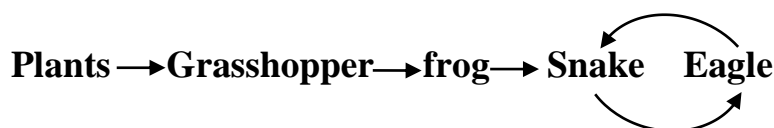
SECTION – I : (Maximum Marks: 20)

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61. Which option should come in the empty box 'X' in the given sequence?



- (a) Thalamus (b) Pedicel
 (c) Bract (d) Androecium
62. Iron, a biological nutrient, is found in human body in
 (a) bones (b) blood
 (c) hair (d) All of these
63. Scurvy is
 (a) a deficiency disease caused due to deficiency of vitamin C.
 (b) a deficiency disease caused due to deficiency of vitamin D.
 (c) a deficiency disease caused due to deficiency of vitamin A.
 (d) a deficiency disease caused due to deficiency of minerals.
64. Maria took some dry moong seeds and soaked them overnight in water. Then, she boiled the seeds. After boiling she drained extra water, wrapped the boiled seeds in a wet cloth and set them aside for 28 hours. After 28 hours, she observed that seeds did not germinate. Which of the following is the reason for the failure of germination?
 (a) Seeds should not have been soaked in water overnight.
 (b) Seeds should not have been boiled.
 (c) Seeds should have been wrapped in a dry cloth.
 (d) Extra water should not have been drained.
65. Study the following food chain. What is wrongly depicted in this food chain?



- (a) grasshopper eating frog (b) frog eating grasshopper
 (c) snake eating eagle (d) eagle eating snake
66. When lemon/vinegar is added to warm milk, it is called:-
 (a) setting of milk (b) curdling of milk
 (c) pasteurization (d) creaming

67. Which of the following groups of letters after unscrambling will give the term used to designate organisms which eats only flesh?

- (a) ROEDUPCR (b) ERHVOBIRE
(c) ARVOCNIER (d) MIVRONOE

68. Match the following:-

	Column-I		Column-II
(a)	Scavenger	(p)	Mosquito
(b)	Parasite	(q)	Bacteria
(c)	Decomposer	(r)	Vulture

- (a) A → (q), B → (r), C → (p) (b) A → (r), B → (p), C → (q)
(c) A → (p), B → (a), C → (q) (d) A → (r), B → (q), C → (p)

69. Read the following statements.

A. The edible part in mango is fruit whereas leaf is the edible part in cabbage.

B. In tomato, the edible part is only root, other parts like stem, leaves and fruits are non-edible.

C. Milk producing animals are called milch animals.

D. Birds which provide eggs and meat are called poultry animals.

Which of the above statements are correct

- (a) A, B and C only (b) B, C and D only
(c) A, C and D only (d) A, B and D only

70. A food sample is taken in a test-tube and a few drops of iodine solution were added to it. It was observed that the solution turned blue black. Its how's the presence of which one of the following component in the food sample?

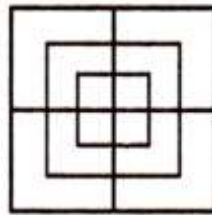
- (a) Proteins (b) Carbohydrate
(c) Fat (d) Vitamins

PART – 6 : BRAIN TEASERS

SECTION – I : (Maximum Marks: 20)

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71. How many squares are there in the given figure?



- (a) 15 (b) 16 (c) 18 (d) 20

72. Identify the figure that gives the completes the pattern.

Question Figure



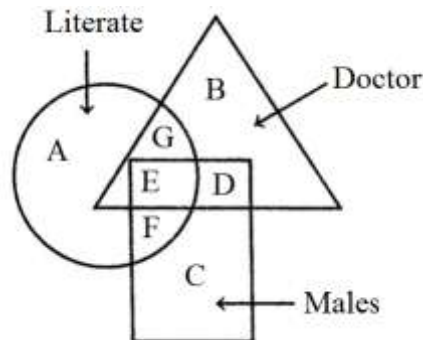
(X)

Answer Figures



- (a) (b) (c) (d)

73. Study the following diagram to answer these questions.



Which part shows Literate Males, who are Doctors?

- (a) G (b) E (c) D (d) F

74. Study the following arrangement carefully and answer the questions given below :

8 C M @ N £ T 2 Y 6 S α Q \$ 7 * W # Z 3 U E % A 4

If all the vowels are dropped from the above series, which of the following would be the eighth element to the right of the thirteenth element from the left end ?

- (a) 4 (b) 8 (c) % (d) C

75. One of the following numbers shows a property different from the rest. Identify the odd number.
(a) 77 (b) 107 (c) 54 (d) 91
76. At their usual efficiency levels, A and B together finish a task in 12 days. If A had worked half as efficiently as she usually does, and B had worked thrice as efficiently as he usually does, the task would have been completed in 9 days. How many days would A take to finish the task if she works alone at her usual efficiency?
(a) 18 (b) 12 (c) 24 (d) 36
77. Dhvanit takes twice as much time as Gurpreet to finish a job. Gurpreet and Hemank together take one- thirds of the time to finish the job than Dhvanit takes working alone. Moreover, in order to finish the job, Dhvanit takes three days more than that taken by three of them working together. In how many days will Hemank finish the job working alone?
(a) 2 (b) 4 (c) 1 (d) 8
78. In November, Sarvesh bought the same amount of rice and the same amount of wheat as he had bought in October, but spent Rs. 150 more due to price increase of rice and wheat by 20% and 12%, respectively. If Sarvesh had spent Rs. 450 on rice in October, then how much did he spend on wheat in November?
(a) Rs. 580 (b) Rs. 570 (c) Rs. 560 (d) Rs. 590
79. Complete the following series by inserting the number in place of '?':
A, D, H, M, ?
(a) U (b) T (c) W (d) S
80. Complete the following series by inserting the number in place of '?':
14, 16, 19, 24, 31, 42, ?
(a) 54 (b) 57 (c) 56 (d) 55

Space for Rough Work

Space for Rough Work