PART I : MAT
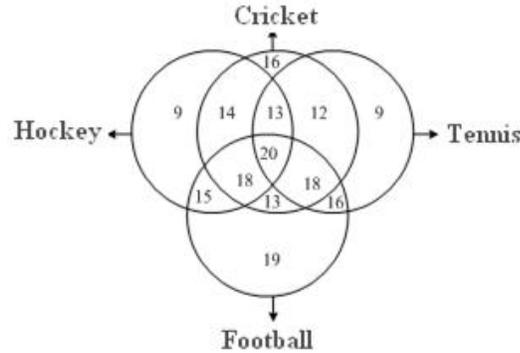
(Only One Option Correct Type) (+2, −1)

This section contains 5 multiple choice questions. Each question has four choices (a), (b), (c) and (d) out of which ONLY ONE Option is correct.

1. A clock loses 1% time during the first week and then gains 2% time during the next one week. If the clock was set right at 12 noon on a Sunday. What will be the time that the clock will show exactly 14 days from the time it was set right ?
    (a) 1:36:48 pm
    (b) 1:40:48 pm
    (c) 1:41:24 pm
    (d) 10:19:12 pm

2. Sakshi, Rajendra and Surinder are the children of Mr. & Mrs. Agarwal. Renu, Rajan and Sunil are the children of Mr. & Mrs Bhaskar. Sunil and Sakshi are married; Anil & Sanjay are their children. Geeta and Ramesh are children of Mr. & Mrs. Gupta. Geeta is married to Surinder; Rajni, Sonu and Raju are their Children. Rahul & Mahendra are children of Mr. & Mrs. Saxena. Rahul is married to renu; Bindu & Rani are their Children. How is 'Rajendra' related to 'Rajni'?
    (a) Brother
    (b) Brother-in-law
    (c) Cousin
    (d) Uncle

Space for Rough Work

MAT

Direction (Q3 & 4) Refer to the following Venn Diagram

3. The number of students in total who play cricket or hockey or football

   (a) 183   (b) 190   (c) 424   (d) 430

4. The number of students who play cricket and tennis among other games was.

   (a) 62   (b) 63   (c) 65   (d) 66

5. A straight line segment is 36 cm long. Points are to be marked on the line from both the end points. From each end, the first point is at a distance of 1 cm from the end. The second point is at a distance of 2 cm from the first point & the third point is at a distance of 3 cm from the second point and so on. If the points on the ends are not counted and the common points are counted as one, what is the no. of points?

   (a) 8   (b) 10   (c) 12   (d) 14

END OF MAT PORTION

Space for Rough Work

PART II : MATHEMATICS

(Only One Option Correct Type) (+4, −1)

This section contains 5 multiple choice questions. Each question has five choices (a), (b), (c), (d) and (e) out of which ONLY ONE Option is correct.

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6. A Committee is composed of W women and M men. If 3 women and 2 men are added to the committee and if one person is selected at random from the enlarge committee then the probability that a women is selected can be represented by

(a) $\dfrac{W+1}{W+M+1}$ (b) $\dfrac{W+3}{W+M+5}$ (c) $\dfrac{W+3}{W+M-5}$ (d) $\dfrac{W}{W+3}$

7. The Ratio of the Volumes of two cubes whose total surface areas are in the ratio of 36 : 49 is

(a) 6 : 7   (b) 36 : 49   (c) 216 : 343   (d) 343 : 216

8. If $x + \dfrac{1}{1 + \dfrac{1}{1 + \dfrac{1}{2}}} = 3$ then the value of x is

(a) $3\dfrac{5}{7}$ (b) $2\dfrac{2}{5}$ (c) 0   (d) $\dfrac{1}{2}$

9. The Marked price of a book is Rs. 100. The shopkeeper gave 25% discount on it. Then, the sale price of the book is.

(a) Rs. 100   (b) Rs. 75   (c) Rs. 25   (d) Rs. 125

Space for Rough Work

10. Find S using formula $S = \dfrac{a(1-r^n)}{1-r}$ if a = –2, r = 2 and n = 3.

(a) 14   (b) –14   (c) 2   (d) –2

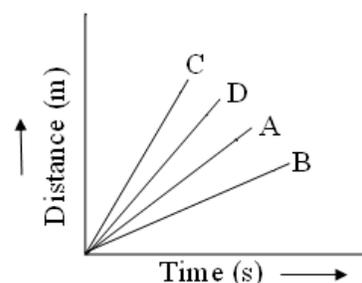**END OF MATHEMATICS PORTION**

Space for Rough Work

PART III : PHYSICS

Section # 1 (Only One Option Correct Type) (+4, –1)

This section contains 5 multiple choice questions. Each question has four choices (a), (b), (c) and (d) out of which ONLY ONE Option is correct.
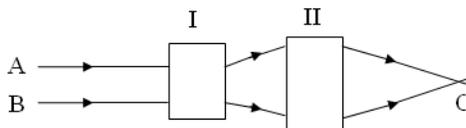
11. Four similar cars having exactly the same mass are running at the same speed on the same road when brakes are applied at the same time. The cars come to a stop after covering distances of 5m, 5.5m, 4.8m and 5.2m respectively. The friction between the brake pads and discs will be the maximum in the car which travels the distance of

(a) 5m   (b) 5.5m   (c) 4.8m   (d) 5.2m

12. Four cars A, B, C and D are moving on a levelled, straight road. Their distance-time graphs are shown in the given figure. Which of the following is the correct statement regarding the motion of these cars?

(a) Car A is faster than car D
(b) Car B is the slowest
(c) Car D is faster than the car C
(d) Car C is the slowest

13. Two parallel rays of light A and B as shown in the figure pass through two boxes. The possible combination of devices used in boxes I and II are

(a) Convex lens and Concave lens   (b) Concave mirror and Convex mirror
(c) Concave lens and Concave mirror   (d) Concave lens and Convex lens

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Space for Rough Work

14. The unit of refractive index is
    (a) cm/s   (b) No unit   (c) N – m   (d) m/s^2

15. The number of images formed when the angle between two mirrors is 24⁰ is
    (a) 18   (b) 20   (c) 16   (d) 14

END OF PHYSICS PORTION

Space for Rough Work

PART IV : CHEMISTRY

(Only One Option Correct Type) (+2, −1)

This section contains 15 multiple choice questions. Each question has four choices (a), (b), (c) and (d) out of which ONLY ONE option is correct.

16. The metal which is kept in kerosene is

    (a) Magnesium   (b) Sodium   (c) Iron   (d) Gold

17. Which of the following are natural fibres?

    (a) Nylon, polyester and spandex.   (b) Hide of animals.

    (c) Wool, silk and hemp.   (d) Petroleum, coal and natural gas.

18. Which gas burns with a characteristic 'POP' sound?

    (a) Carbon dioxide   (b) Hydrogen   (c) Oxygen   (d) Nitrogen

19. _____ is used extensively in making microchips.

    (a) Silicon   (b) Hydrogen   (c) Oxygen   (d) Copper

20. What is PET?

    (a) Polyester   (b) Polyester and Terylene

    (c) Poly Ethene Terephthalate   (d) Poly Ethene Terylene

END OF CHEMISTRY PORTION

Space for Rough Work

PART V : BIOLOGY

(Only One Option Correct Type) (+2, −1)

This section contains 15 multiple choice questions. Each question has four choices (a), (b), (c) and (d) out of which ONLY ONE option is correct.

21. Crossing between genetically dissimilar plants?

    (a) Fertilization   (b) Hybridization   (c) Ovulation   (d) None

22. Male sex hormone is?

    (a) Estrogen   (b) Progestron   (c) Testosterone   (d) Tyrosine

23. Metamorphosis in frog is controlled by-

    (a) Adrenaline   (b) Thyroxine   (c) Growth hormone   (d) Insulin

24. The poultry birds groomed for obtaining meat are called-

    (a) Layers   (b) Broilers   (c) Pork   (d) Growers

25. Which of the following is an antibiotic?

    (a) Streptomycin   (b) Vaccine   (c) Alcohol   (d) Toxin

END OF TEST PAPER

Space for Rough Work