

PART-I PHYSICS

1. If I is the current through a wire and 'e' is the charge of electron then the number of electrons in t seconds will be given by -
(a) $\frac{Ie}{t}$ (b) e/It (c) It/e (d) Ite
2. Three resistance each of $8\ \Omega$ are connected to a triangle. The resistance between any two terminals will be:
(a) $12\ \Omega$ (b) $2\ \Omega$ (c) $6\ \Omega$ (d) $16/3\ \Omega$
3. AC is preferred because -
(a) it is cheap (b) it is easily reproducible
(c) it is economical in transmission (d) it is not dangerous
4. A light ray falls on a mirror and deviates by 60° then the angle of reflection will be
(a) 30° (b) 90° (c) 60° (d) 180°
5. How will the image formed by a convex lens be affected, if the central portion of the lens is wrapped in black paper, as shown in the fig.



- (a) No image will be formed
 - (b) Full image will be formed but it is less bright
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- (c) Full image will be formed but without the central portion
(d) Two images will be formed, one due to each exposed half.
6. A white light falls on a glass prism, the least deviated color is-
- (a) Violet (b) Orange (c) Red (d) Yellow
7. The source of energy of the sun is-
- (a) Nuclear fission (b) Chemical reaction
(c) Nuclear fusion (d) none of these
8. Lenz's law:
- (a) is the same as the right hand palm rule
(b) determines the magnitude of an induced e.m.f.
(c) bears no relation to the law of conservation of energy
(d) is useful in deciding about the direction of an induced e.m.f.

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PART-II CHEMISTRY

9. Which gas has rotten egg smell?
(a) H_2S (b) CO_2 (c) SO_2 (d) NH_3
10. Which of the following reactions is/are also called redox reactions?
(a) Neutralisation reactions (b) Precipitation reactions
(c) Both (a) & (b) (d) Galvanic reactions
11. Which of the following is a redox reaction?
(a) $\text{H}_2 + \text{Br}_2 \rightarrow 2\text{HBr}$
(b) $2\text{NaCl} + \text{H}_2\text{SO}_4 \rightarrow \text{Na}_2\text{SO}_4 + 2\text{HCl}$
(c) $\text{HCl} + \text{AgNO}_3 \rightarrow \text{AgCl} + \text{HNO}_3$
(d) $\text{NaOH} + \text{HCl} \rightarrow \text{NaCl} + \text{H}_2\text{O}$
12. The %w/w of 50g solution containing 15g solute is
(a) 15
(b) 50
(c) 30
(d) $15/35 \times 100$
13. Nature of blood is usually -
(a) acidic (b) alkaline (c) neutral (d) None of these
-

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14. Salt used in the manufacturing of Washing powder is -

- (a) NaCl (b) $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$ (c) NaHCO_3 (d) CaOCl_2

15. Consider the following five beakers and the substances in it.

Beaker A: Copper sulphate solution + Iron nails

Beaker B: Zinc sulphate solution + Copper turnings

Beaker C: Magnesium sulphate solution + Zinc granules

Beaker D: Zinc sulphate solution + Iron nails

Beaker E: Magnesium nitrate solution + Iron nails

According to the changes that take place in the above beakers select the arrangement of metals copper,

iron, zinc and magnesium in increasing order of reactivity from the alternative given.

- (a) Iron, Copper, Zinc, Magnesium (b) Magnesium, Zinc, Iron, Copper
(c) Copper, Iron, Zinc, Magnesium (d) Copper, Zinc, Iron, Magnesium

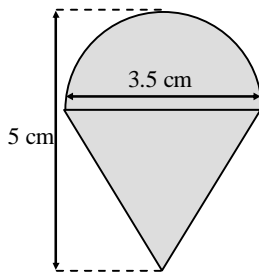
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PART-III MATHEMATICS

16. A card is drawn at random from a well-shuffled pack of 52 cards. Find the probability that the card drawn is neither a red card nor a queen.

- (a) $6/13$ (b) $7/13$
(c) $4/52$ (d) $8/52$

17. In given figure the top is shaped like a cone surmounted by a hemisphere. The entire top is 5 cm in height and the diameter of the top is 3.5 cm. Find the area it has to color (in sq. cm). (Take $\pi = \frac{22}{7}$)?



- (a) 39.6 (b) 50.2
(c) 28.4 (d) 44.3

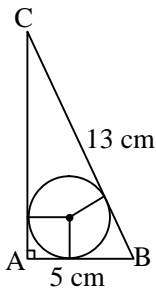
18. A cylindrical container of radius 6 cm and height 15 cm is filled with ice-cream. The whole ice-cream has to be distributed to 10 children in equal cones with

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hemispherical tops. If the height of the conical portion is four times the radius of its base, find the radius of the ice-cream cone.

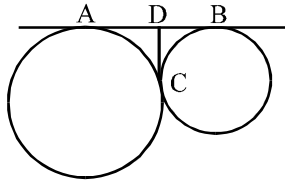
- (a) 2 (b) 3 (c) 4 (d) 6

19. In the figure given below, ABC is a right angled triangle at A with sides $AB = 5$ cm and $BC = 13$ cm. A circle with centre O has been inscribed in the triangle ABC. Calculate the radius of the incircle.



- (a) 4 cm (b) 6 cm
(c) 2 cm (d) 2.5 cm
20. In the given figure, AB and CD are two common tangents to the two touching circles. If $DC = 4$ cm, then find AB

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- (a) 8 cm (b) 6 cm
(c) 12 cm (d) 4 cm

21. Find the value of 'm' so that the roots of the equation :

$$(4 - m) x^2 + (2m + 4) x + (8m + 1) = 0 \text{ may be equal}$$

- (a) 0,3 (b) 4,6 (c) 3,4 (d) 2,8

22. There is a small island in the middle of a 100 m wide river and a tall tree stands on the island. P and Q are points directly opposite to each other on two banks, and in line with the tree. If the angles of elevation of the top of the tree from P and Q are respectively 30° and 45° , find the height of the tree

- (a) 42.4 m (b) 32.2 m (c) 36.6 m (d) none of these

23. The angles of a quadrilateral are in A.P. whose common difference is 10° . Find the smallest angle?

- (a) 75° (b) 85° (c) 95° (d) 65°

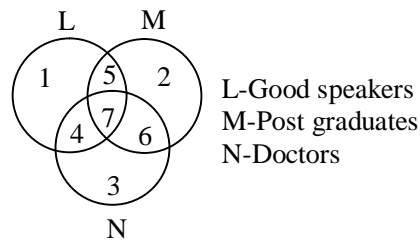
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24. Determine the ratio in which the point P (m, 6) divides the join of A (-4, 3) and B (2, 8).
- (a) 3:2 (b) 2:5 (c) 3:4 (d) none of these
25. A man cycles to his office from his house at speed of 5km/hr and reaches 10min late. If he cycles at a speed of 6 km/hr, he reaches 10 min early. What is distance between his office and house?
- (a) 10 km (b) 8 km (c) 12 km (d) none of these

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PART-IV MAT

26. I am facing South. I turn right and walk 20 m. Then I turn right again and walk 10 m. Then I turn left and walk 10 m and then turning right walk 20 m. Then I turn right again and walk 60 m. In which direction am I from the starting point?
 (a) North (b) North-West (c) East (d) North-East
27. Shaloo ran 20 m to the east, then he turned left and walked for 15 m, then turned right and went 25 m and then turned right again and went 15 m. How far was Shaloo from the starting point?
 (a) 45 m (b) 35 m (c) 25 m (d) 15 m
28. Which number indicates good speakers who are neither post graduates nor doctors?



- (a) 6 (b) 2 (c) 5 (d) 1
29. In U.P. on 17 th Oct., 1996 the President rule was declared. Find the day of week on that date.
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- (a) Tuesday (b) Friday (c) Wednesday (d) None of these

30. Joule is related to Energy in the same way as Pascal is related to ?

- (a) Volume (b) Pressure (c) Density (d) Purity

31. How many numbers are there from 4 to 53 which are either divisible by 3 or of which any digit contains zero?

- (a) 20 (b) 15 (c) 16 (d) 19

BD ₃	CE ₅	DF ₁₅
EG ₂	FH ₄	GI ₈
HJ ₄	IK ₆	?

32.

- (a) JL₂₄ (b) IJ₁₈ (c) JK₁₈ (d) JL₁₂

33. c _ baa _ aca _ cacab _ acac _ bca

- (a) acbaa (b) bbcaa (c) bccab (d) cbaac

34. If 'SELDOON' means 'NOODLES', what does 'S P U O S' means?

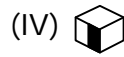
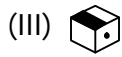
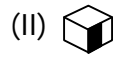
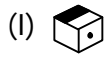
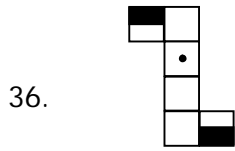
- (a) D O M E D (b) B O M E D
(c) T O M E D (d) S O U P S

35. If T means '-', R means '+', P means 'x', M means '□', S means '=', Q means '>' and N means '<', then which one of the answer is correct ?

- (a) 5 P 6 M 10 R 8 T 7 N 10 T 7
(b) 2 R 6 T 8 P 3 Q 7 R 2 P 3
(c) 35 M 5 T 2 R 12 N 6 P 3

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(d) 35 R 8 P 2 M 4 T 10 S 10 P 3 T 7



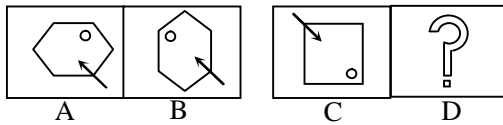
(a) I and II only

(b) II and III only

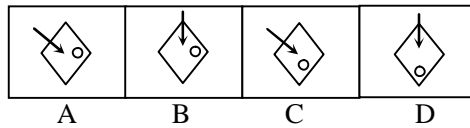
(c) II and IV only

(d) I, II, III and IV

37. Problem figures

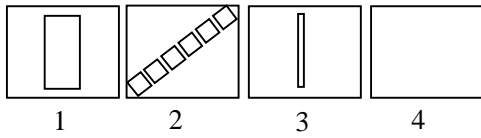


Answer Figures

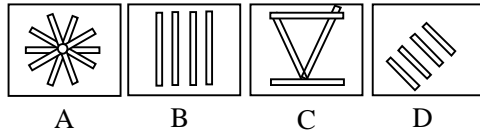


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38.



Answer Figures



39. 95, 115.5, 138, (.....), 189

- (a) 154.5 (b) 162.5 (c) 164.5 (d) 166.5

40. _ _ babbba _ a _ _

- (a) ababb (b) baaab (c) bbaba (d) babbb

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