

## Part - I (Physics)

---

**1. Magnetic materials lose their magnetic properties when:**

- (A) heated strongly                      (B) exposed to sunlight    (C) kept in an electric field    (D) dropped in water

**2. In the case of a hypermetropia patient the 'near point' is:**

- (A) closer than normal                      (B) farther than normal    (C) the same as farpoint    (D) behind the eye

**3. Neev wants to get a thin coating of silver on his copper ring by electroplating it. Which of the following is NOT the correct thing for him to do ?**

- (A) Make his ring as the negative electrode                      (B) Make pure silver as the positive electrode  
(C) Take a copper salt solution as the electrolyte                      (D) Both B & C

**4. An object is placed 3 cm in front of a biconvex lens of radius of curvature 12 cm. The image formed will be**

- (A) enlarged and real                      (B) virtual                      (C) virtual and diminished    (D) enlarged and inverted

**5. Which colour has the longest wavelength and can bend more easily ?**

- (A) Red                      (B) Blue                      (C) Green                      (D) Orange

**6. Hydrogen produced in a dry cell is :**

- (A) converted to water by ammonium chloride                      (B) evaporated  
(C) converted to water by manganese dioxide                      (D) converted to water by powdered carbon

**7. A virtual image is always :**

- (A) magnified                      (B) diminished                      (C) inverted                      (D) upright

**8. How many 1.5 V cells are to be connected in parallel to obtain a voltage of 6 V ?**

- (A) 9                      (B) 4                      (C) 6                      (D) It is not possible
- 

*Space for Rough Work*

**Passage (Question No. 9 to11)**

A light ray makes an angle of reflection  $60^\circ$ , when it reflects from a plane reflecting sheet.

**9. The glancing angle of reflection will be**

- (A)  $60^\circ$                                       (B)  $30^\circ$                                       (C)  $45^\circ$                                       (D)  $90^\circ$

**10. The angle of incidence will be**

- (A)  $60^\circ$                                       (B)  $30^\circ$                                       (C)  $45^\circ$                                       (D)  $90^\circ$

**11. The angle of deviation will be**

- (A)  $60^\circ$                                       (B)  $30^\circ$                                       (C)  $45^\circ$                                       (D)  $90^\circ$

**12. The north of a magnetic compass always faces the north of earth. This is in accordance to which principle ?**

- (A) Like poles repel & unlike poles attract                                      (B) Domain theory  
(C) Magnetism is strongest at poles                                      (D) None of the above

**13. The fastest planet of the solar system is :**

- (A) Mercury                                      (B) Pluto                                      (C) Jupiter                                      (D) Neptune

## Part – II (Chemistry)

---

**14. A black substance that behaves both as an oxidising agent and a catalyst is :**

- (A) Vanadium pentoxide                      (B) Ferric oxide                      (C) Tri-lead tetraoxide                      (D) Manganese dioxide
- 

*Space for Rough Work*

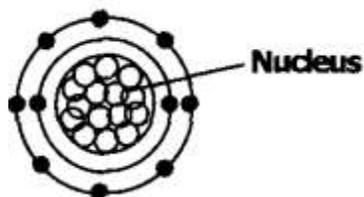
15. Which gas combines with an acidic gas to give a nitrogenous fertilizer ?

- (A) Nitrogen (B) Phosphorus (C) Ammonia (D) Potassium

16. The melting point of a substance is  $-2^{\circ}\text{C}$ . At room temperature it will exist as :

- (A) solid (B) liquid (C) gas (D) semi-solid

17. Study the given figure. The nucleus consists of:



- (A) protons (B) neutrons (C) electrons (D) nucleons

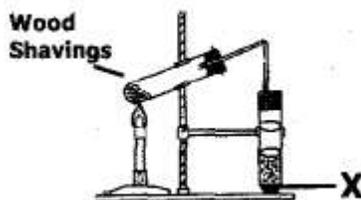
18. The solid obtained when a burning candle is introduced in a jar of chlorine is :

- (A) Carbon (B) Potassium chloride (C) Zinc chloride (D) Magnesium chloride

19. The gas obtained on roasting Zinc blende at elevated temperatures is:

- (A)  $\text{H}_2\text{S}$  (B) S (C)  $\text{SO}_2$  (D)  $\text{SO}_3$

20. In the given figure, which of the following is represented by 'x'?



- (A) Coke (B) Petrol (C) Charcoal (D) Wood tar

*Space for Rough Work*

**21. CNG is used in automobiles because it:**

- (A) controls air pollution (B) can be easily refilled  
(C) reduces lead, sulphur & nitrogen in air (D) all of the above

## Part – III (Biology)

---

**22. Which of the following determines the sex of a child?**

- (A) Chromosomes of ovum (B) Chromosomes of sperm  
(C) Time taken between ovulation and fertilization (D) Time taken between fertilisation and implantation

**23. The basic cause for soil erosion and landslides in hilly regions is:**

- (A) clearing land for cultivation (B) cutting down of forests  
(C) lack of vegetation (D) all of these

**24. The structure found in amoeba, but not in chlamydomonas is:**

- (A) golgi bodies (B) mitochondria (C) plastids (D) centrosomes

**25. The gummy substance 'algin', used to thicken icecream, cosmetics and shaving cream, is obtained from :**

- (A) red algae (B) blue-green algae (C) kelps (D) green algae

## Part – IV (Mathematics)

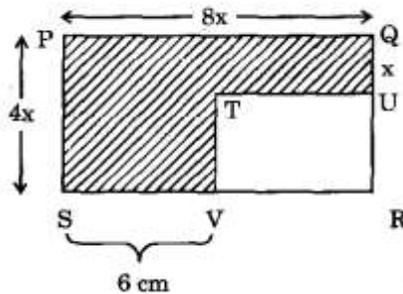
---

**26. The difference between S.I and C.I compounded yearly at the rate of 4% in two years period on a certain amount of money is Rs. 1. The amount is:**

- (A) Rs 600 (B) Rs 625 (C) Rs 650 (D) Rs 675
- 

*Space for Rough Work*

27. In the figure below, PQRS and TURV are rectangles. The lengths shown in the figure are in centimetres. If the perimeter of the unshaded rectangle TURV is 32 cm, then the value of x is:



- (A) 2 cm                                      (B) 4 cm                                      (C) 6 cm                                      (D) 8 cm

28. A man sold two houses for Rs. 3,75,890 each. On one he gains 15% and on the other he loses 15%. How much does he gain or lose in the whole transaction?

- (A) 0%                                      (B) 1% loss                                      (C) 2.25% loss                                      (D) 2.25% gain

29. In a quadrilateral ABCD, AB = 3 cm, BC = 4 cm, CD = 5.5 cm, AD = 6 cm and BD = 9 cm.

Is the construction of quadrilateral is possible?

- (A) Yes                                      (B) No, because  $AB + AD = BD$   
 (C) Possible but with difficulty                                      (D) Yes, because  $AB + AD = BD$

30. Which of the following are perfect cubes?

- (A) 612; 512; 730                                      (B) 512; 343; 1331                                      (C) 343; 612; 869                                      (D) 512; 730; 1331

31. Neev is 'X' years old. His sister's age is  $4\frac{1}{2}$  times that Neev. Where as his uncle is 30 years older than him. If the total of their ages is 56 years, what is the age of Neev?

- (A) 12 years                                      (B) 10 years                                      (C) 8 years                                      (D) 4

*Space for Rough Work*

32. The compound interest on a certain sum of money for 2 years at 10% per annum is Rs. 420. The simple interest on the same sum at the same rate and for the same time will be:

- (A) Rs.350                                      (B) Rs. 375                                      (C) Rs.380                                      (D) Rs.400

33. If  $0 < a < 1$ , then the value of  $a + \frac{1}{a}$  is:

- (A)  $>2$                                       (B)  $<2$                                       (C)  $\geq 4$                                       (D) not defined

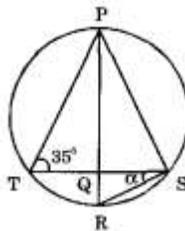
34. Which of the following statements is true?

- (A) The diagonals of a rectangle are perpendicular                                      (B) The diagonals of a rhombus are equal  
 (C) Every square is a rhombus                                      (D) None of these

35. By dividing  $6p^2 + p - 12$  by  $(2p + 3)$ , we get:

- (A)  $3p-4$                                       (B)  $3p + 4$                                       (C)  $4p-3$                                       (D)  $4p + 3$

36. In the diagram, CDE is a straight line. Given that  $BC = CD$ , then the value of  $x$  is:



- (A)  $50^\circ$                                       (B)  $55^\circ$                                       (C)  $60^\circ$                                       (D)  $65^\circ$

37. While selling a watch, a shopkeeper gives a discount of 5%. If he gives a discount of 7%, he earns Rs. 15 less as profit. The marked price of the watch is:

- (A) Rs. 697.50                                      (B) Rs. 712.50                                      (C) Rs. 787.50                                      (D) None of these

*Space for Rough Work*

38. The sum of two consecutive whole numbers is 12. If the smaller number is  $n$ , which of the following statements is the correct equation?

- (A)  $2n = 12$  (B)  $n + n - 1 = 12$  (C)  $2n - n = 12$  (D)  $n + n + 1 = 12$

39. If  $x^2 = 0.04$ , then  $x^3 =$  \_\_\_\_\_

- (A) 0.008 (B) 0.08 (C) 0.002 (D) 0.02

40. If ABCD is a parallelogram, then  $\angle A - \angle C =$  \_\_\_\_\_

- (A)  $180^\circ$  (B)  $0^\circ$  (C) between  $10^\circ$  &  $180^\circ$  (D) None of these

41. ABCD is a quadrilateral, if AC and BD bisect each other, then ABCD must be:

- (A) Square (B) Rectangle (C) Rhombus (D) All of these

42. The product of two rational numbers is  $\frac{-}{16}$ . If one of the numbers is  $\frac{-}{3}$ , then the other number is

- (A)  $\frac{36}{48}$  (B)  $\frac{25}{64}$  (C)  $\frac{27}{49}$  (D)  $\frac{27}{64}$

43. There were only two candidates in an election. One got 62 % votes and was elected by a margin of 144 votes. The total numbers of votes were

- (A) 500 (B) 600 (C) 700 (D) 800

44. The ratio of two numbers is 3: 8 and their difference is 115. The largest number is

- (A) 69 (B) 115 (C) 184 (D) 230

45. If 45 students can consume the a stock of food in 2months, then for how many days the same stock of food will last for 27 students ?

- (A) 100 days (B) 144 days (C) 160 days (D) 180 days

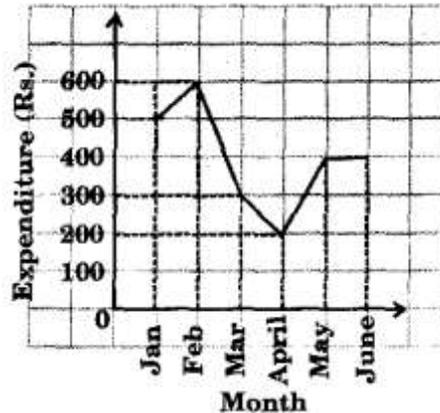
---

*Space for Rough Work*

46. If certain number of men can finish a piece of work in 100 days. If there were 10 men less, it would take 10 days more for the work to be finished. How many men were there originally ?

- (A) 75 (B) 82 (C) 100 (D) 110

47. The line graph shows the monthly expenditure of Vasu family. The total expenditure over the first 3 months is:



- (A) Rs. 320 (B) Rs. 600 (C) Rs. 1100 (D) Rs.1400

48. The number of positive integers less than or equal to 100, which are not divisible by 2, 3 or 5, is:

- (A) 24 (B) 26 (C) 29 (D) 32

49. The number of natural number divisible by 5 between 1 and 1000 is;

- (A) 197 (B) 199 (C) 198 (D) 200

50. Which of the following numbers is exactly divisible by 99?

- (A) 114345 (B) 135792 (C) 3572404 (D) 913464

---

*Space for Rough Work*

## Part – V (Mental Ability Test)

---

51. If '-' means 'x'; 'x' means '+'; '+' means '÷' and '÷' means '-' then  $-40 \times 12 + 3 - 6 \div 60 = ?$

- (A) 2                      (B) 4                      (C) 8                      (D) 16

52. In a code PERFECT is written as RGTHGEV then BROWN is written as

- (A) DOPLY                (B) DTQYP                (C) DTCLY                (D) DQLNP

53. Some boys are sitting in a row, P is 14<sup>th</sup> from the left and F is 7<sup>th</sup> from the right. If there are 4 boys in between P and F then, how many boys are there in the row?

- (A) 20                      (B) 22                      (C) 25                      (D) 27

54. In the following number series how many 9's are there which are preceded by 3 and followed by 6?

39693939396363956956939639

- (A) 2                      (B) 3                      (C) 4                      (D) 5

55. If the English alphabet is written in reverse order, then which letter will be 6<sup>th</sup> of the right of P?

- (A) J                      (B) K                      (C) M                      (D) V

Directions - Q 56: Out of the four alternatives, select the one which when substituted for the question mark "?" maintains the same relationship on both sides of the sign "::"

20.  $3 : 243 :: 5 : ?$

- (A) 745                      (B) 1215                      (C) 2145                      (D) 3125

---

*Space for Rough Work*

Directions (Q. 57 to 58 ): Find the missing number in each of the following:

57.

22. 3, 12, 27, 48, 75, 108, ?

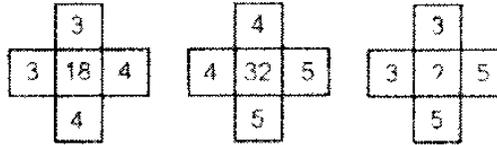
(A) 121

(B) 137

(C) 147

(D) 151

58.



(A) 22

(B) 26

(C) 32

(D) 36

59. Select the odd one

(A) DXCLQZ

(B) PFZUBM

(C) NWMBHJ

(D) XGKNTY

60. In the following find the suitable match to the word as per the relation in the other pair. Choose the correct alternative.

acE:bdF::fhJ:?

(A) giK

(B) gkH

(C) dhK

(D) ikH

Answer Key															
Q.No	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans	A	B	C	B	A	C	D	D				A	A	D	C
Q.No	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans	B	D	A	C	D	D	B	D	D	C	B	A	C	B	B
Q.No	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans	D	D	A	B	A	Full Credit	D	D	A	C	D	D	B	C	A

<b>Q.No</b>	<b>46</b>	<b>47</b>	<b>48</b>	<b>49</b>	<b>50</b>	<b>51</b>	<b>52</b>	<b>53</b>	<b>54</b>	<b>55</b>	<b>56</b>	<b>57</b>	<b>58</b>	<b>59</b>	<b>60</b>
<b>Ans</b>	D	D	B	D	A	B	B	C	B	D	Full Credit	Full Credit	B	B	A

---

*Space for Rough Work*