SAMPLE PAPER

Class: 10th (Moving 11th)

**Time:** 1 Hr 15 Min.   **Max. Marks:** 60

PHYSICS

Q1. A mirror forms a virtual image of a real object:

a) It must be convex mirror   b) It must be a concave mirror

c) It must be a plane mirror   d) It may be any of the mirrors mentioned above

Q2. A ray of light is travelling from transparent medium to air. The angle of incident is 45° and that of refraction is 30°. Find the refractive index of the medium:

a) 2   b) $1/\sqrt{2}$ c) $2\sqrt{2}$ d) $\sqrt{2}$

Q3. When light passes from one medium to another, which of the following quantity or quantities do not change?

a) Frequency   b) Wavelength   c) Speed   d) Both b and c

Q4. A concave mirrors forms an inverted image of an object placed at a distance of 12 cm from it. The size of the image is double that of the object. Where is the image formed?

a) +12 cm   b) -12 cm   c) +24 cm   d) -24 cm

Q5. A ray of light falls on a mirror and deviates by 60°, then the angle of reflection will be:

a) 30°   b) 90°   c) 60°   d) 180°

Q6. A beam of white light passing through a prism is split up into its constituent colours. The light which undergoes least deviation is:

a) violet   b) yellow   c) red   d) green

Q7. A current I flows through the cylindrical conductor. Then, the ratio of potential difference along AB and BC is
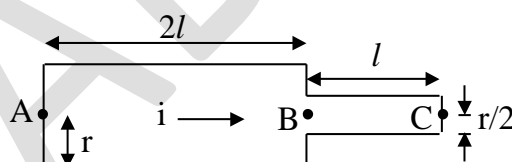
a) 1 : 1   b) 1 : 2   c) 1 : 4   d) 1 : 3

Q8. A 40 W bulb is connected in series with a room heater. If now the 40W bulb is replaced by a 100W bulb, the heater output will

a) decrease   b) will remain the same

c) increase   d) will become zero

Q9. An electric device draws a current of 2A for 1.25 min. If the resistance of the element present in it is 100 Ω, calculate the electric energy drawn by the device in Kilo joules:

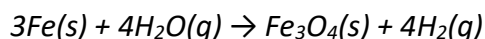a) 300   b) 30   c) 3000   d) 30,000

Q10. In the circuit diagram given below, find the current in 3ohm resistance?
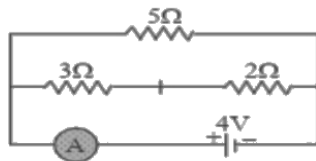
a) 3.2A   b) 1.6A   c) 0.8A   d) 2.4A

CHEMISTRY

Q11. Which of the following statements about the given reaction are correct?

$$3Fe(s) + 4H_2O(g) \rightarrow Fe_3O_4(s) + 4H_2(g)$$

(i) Iron metal is getting oxidized   (ii) Water is getting reduced

(iii) Water is acting as reducing agent   (iv) Water is acting as oxidizing agent

a) (i), (ii) and (iii)   b) (iii) and (iv)   c) (i), (ii) and (iv)   d) (ii) and (iv)

Q12. Three beakers labeled as A, B and C each containing 25mL of water taken. A small amount of NaOH anhydrous $CuSO_4$ and NaCl were added to the beakers A, B and C respectively. It was observed that there was an increase in the temperature of the solutions contained in beakers A and B, whereas in case of beaker C, the temperature of the solutions falls. Which one of the following statement(s) is (are) correct?

(i) In beakers A and B, exothermic process has occurred

(ii) In beakers A and B, endothermic process has occurred

(iii) In beakers C, exothermic process has occurred

(iv) In beaker C, endothermic process has occurred

a) (i) only   b) (ii) only   c) (i) and (iv)   d) (ii) and (iii)

Q13. The formula of plaster of paris is

a) $CaSO_4$ b) $CaSO_2.\frac{1}{2}H_2O$ c) $CaSO_4. 2H_2O$ d) $CaSO_4.H_2O$

Q14. Which substance on treatment with chlorine gives a salt called bleaching powder?

a) $CaSO_4$ b) $Ca(OH)_2$ c) CaO d) $CaHCO_3$

Q15. Silver articles become black on prolonged exposure to air. This is due to the formation of

a) Ag_3N b) Ag_2O c) Ag_2S d) Ag_2S and Ag_3N

Q16. Stainless steel is very useful material for our life. In stainless steel, iron is mixed with

a) Ni and Cr   b) Cu and Cr   c) Ni and Cu   d) Cu and Au

Q17. Which statement about diamond is correct?

a) Diamond is less stable than graphite   b) Diamond is good conductor of electricity

c) Diamond is more stable than graphite   d) Diamond has very low melting point

Q18. How many single and double bonds respectively are present in cyclobutene molecule?

a) 4, 1   b) 8, 1   c) 9, 1   d) 10, 1

Q19. Which of the following is the outermost shell for elements of period 2?

a) K-shell   b) L-shell   c) M-shell   d) N-shell

Q20. Which of the following are the characteristics of isotopes of an element?

(i) Isotopes of an elements have same atomic masses

(ii) Isotopes of an elements have same atomic number

(iii) Isotopes of an element show same physical properties

(iv) Isotopes of an elements show same chemical properties

a) (i), (iii) and (iv)   b) (ii), (iii) and (iv)   c) (ii) and (iii)   d) (ii) and (iv)

BIOLOGY

Q21. Movement of pollen tube towards ovule is

a) Chemotropism   b) Hydrotropism   c) Thigmotropism   d) None

Q22. Cytokinin are known to

a) Inhibit cytoplasmic movement   b) Help in retention of chlorophyll

c) Influence water movement   d) All of these

Q23. Hyposecretion of ………………………in children causes dwarfism :-

a) Thyroxine   b) Growth hormone

c) Adrenaline hormone   d) Vasopression hormone

Q24. Which of the following is correct with reference to haemodialysis?

a) Absorbs and resends excess of ions

b) The dialysis unit has a coiled cellophane tube

c) Blood is pumped back through a suitable artery after haemodialysis

d) Anti-heparin is added prior to haemodialysis

Q25. Emasculation is achieved by

a) Removal of stigma   b) Removal of anthers

c) Removal of sepal and petals   d) Removal of gynoecium

Q26. Anemophily is pollination by

a) Air   b) Water   c) Insects   d) Animal

Q27. Expiration involves –

a) Relaxation of diaphragm and intercostals muscles

b) Contraction of diaphragm and intercostal muscles

c) Contraction of diaphragm muscles

d) Contraction of intercostals muscles

Q28. The process in which water is split during photosynthesis is –

a) Photolysis   b) Hydrolysis

c) Plasmolysis   d) Hemolysis

Q29. Ecology (= oekologic) was coined by :-

a) Linnaeus   b) Haeckel

c) Harvey   d) Odum

Q30. A food chain is :-

a) Group of organisms which eat the same type of food

b) Animals eating the plants

c) Series of plants / animals which are interrelated in the form of organism being eaten as food by the other

d) None of these

MATHEMATICS

Q31. If the area of a sector of a circle bounded by the an arc of length 5π cm is equal to $20\,\pi$ cm^2, then the longest chord of the circle is:

a) 12cm   b) 16cm   c) 8cm   d) 10cm

Q32. What is the least possible sum of the arithmetic progression -23, -19, -15,....?

a) -3   b) -78   c) -87   d) 0

Q33. In the given circle O is the centre of the circle and AD, AE and BC are the tangents. Which of the following is true?
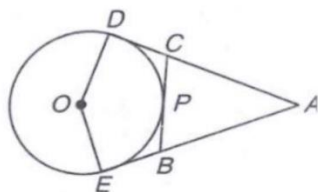
a) AC + AB + BC = AE   b) 3AE = AB + BC + AC

c) AB + BC + AC = 4AE   d) 2AE = AB + BC + AC

Q34. For all the chords of the circle which of the following is/ are not the shortest passing through a given point.

a) Chord trisected at the point   b) Chord bisected at the point

c) Chord passing through the centre   d) Both A and C

Q35. If the distance between the points (4, p) and (1, 0) is 5, then p =

a) ± 4 b) 4   c) -4   d) 0

Q36. The tops of two poles of height 16m and 10m are connected by a wire of length l metres. If the wire makes an angle of 30° with the horizontal, then $l =$

a) 26m   b) 16m   c) 12m   d) 10m

Q37. If the system of equations 2x + 3y = 7 and, (a + b)x + (2a − b)y = 21 has definitely many solutions, then:

a) a = 1, b = 5   b) a = 5, b = 1   c) a = -1, b = 5   d) a = 5, b = -1

Q38. Let $\frac{a}{b}$ and $\frac{c}{d}$ are two rational numbers, then $L.C.M \left(\frac{a}{b}, \frac{c}{d}\right)$ is

a) $\frac{L.C.M(a,c)}{L.C.M(b,d)}$ b) $\frac{L.C.M(a,c)}{H.C.F(b,d)}$ c) $\frac{H.C.F(a,c)}{L.C.M(b,d)}$ d) $\frac{H.C.F(a,c)}{L.C.M(a,c)}$

Q39. If $ax^2 + 2a^2x + b^3$ is divisible by x + a, which of the following is/ are true?

a) a = b   b) $a^2 − ab + b^2 = 0$ c) $a^2 + ab + b^2 = 0$ d) Both A and C

Q40. In a single throw of two dice, find the probability that neither a doublet nor a total of 8 will appear:

a) $\frac{11}{36}$ b) $\frac{5}{18}$ c) $\frac{13}{18}$ d) $\frac{3}{16}$

Q41. If α, ß are the roots of $x^2 - x + 2 = 0$, find the value of $\alpha^2 ß + \alpha ß^2$:

a) 5 b) 3 c) -2 d) 2

Q42. If the median of the data : 7, 8, x – 2, x, 17, 20 written in ascending order is 16, Then mean of data is

a) 15 b) 16 c) 14 d) 13

Q43. If three metallic spheres of radii 6cm, 8cm and 10cm are melted to form a single sphere, the diameter of the sphere is:

a) 12cm b) 24cm c) 30cm d) 36cm

Q44. In ΔDEF and ΔPQR, ∠D = ∠Q and ∠E = ∠R. Which of the following is/are correct?

a) $\frac{DE}{PQ} = \frac{EF}{RP}$ b) $\frac{DE}{QR} = \frac{DF}{PQ}$ c) $\frac{EF}{PR} = \frac{DF}{PQ}$ d) $\frac{DE}{QR} = \frac{EF}{RP}$

Q45. If θ lies in the first quadrant and 5tanθ = 4, find $\frac{5\sin\theta - 3\cos\theta}{\sin\theta + 2\cos\theta}$

a) $\frac{5}{14}$ b) $\frac{3}{14}$ c) $\frac{1}{14}$ d) 0

Q46. If tanα + cotα = 2, then find the value of $\tan^{20}\alpha + \cot^{20}\alpha$ =

a) 0 b) 2 c) 20 d) 2^{20}

Q47. If the quadratic equation $x^2 + (2k – 1)x + (2k + 2) = 0$ is a perfect square, value of k =

a) 7 b) $\frac{7}{2}$ c) $\frac{-1}{2}$ d) Both b and c

Q48. The point on x-axis which is equidistant from point (-3, 7) and (4, -5) is (k, 0), then 7k + 7 =

a) $\frac{3}{2}$ b) $\frac{-3}{2}$ c) $\frac{13}{2}$ d) $\frac{-13}{2}$

Q49. If radius of a cone is doubled and height is halved, the percentage change in volume is

a) 50% b) -50% c) 100% d) -100%

Q50. Which of the following is not a measure of central tendency

a) Mean b) Mode c) Standard deviation d) Median

MENTAL ABILITY

Q51. Find the missing term,

3, 15, 35, 63, 99, (……..).

a) 144 b) 143 c) 121 d) 169

Q52. Find the missing term,

C-2, E-3, G-4, I-5, (……..)

a) H-6 b) J-8 c) K-6 d) L-7

Q53. Find the missing term of the pair.

12 : 35 :: 16 : ?

a) 32 b) 48 c) 49 d) 63

Q54. $3 : 3\frac{3}{8} :: 5 : ?$

a) $5\frac{5}{8}$ b) $6\frac{3}{8}$ c) $5\frac{1}{8}$ d) $2\frac{5}{8}$

Q55. Find the wrong term in the letter number series given below:

G4T, J10R, M20R, P43N, S90L

a) G4T   b) J10R   c) M20P   d) P43N

Q56. If VICTORY is coded as YLFWRUB, how can SUCCESS be coded?

a) VXEEIVV   b) VXFFHVV   c) VYEEHVV   d) VYEFIVV

Q57. Deepa moved a distance of 75 metres towards the north. She then turned to the left and walking for about 25 metres, turned left again and walked 80 metres. Finally, she turned to the right at an angle of 45°. In which direction was she moving finally?

a) North-east   b) North-west   c) South-east   d) South-west

Q58. If A is the brother of B and K, D is the mother of B and E is the father of A. Which one of the following statements is not definitely true?

a) B is the brother of K   b) A is the father of K

c) A is the son of D   d) D is the wife of E

Q59. A day after tomorrow will be X-mas day. What will be the day on New year day if today is Monday?

a) Monday   b) Thursday   c) Tuesday   d) Wednesday

Q60. Which number of present only in one figure?
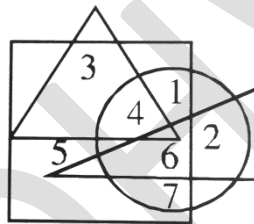
a) 1   b) 3   c) 5   d) 7

SAMPLE PAPER

Class: 10th (Moving 11th)

Q1.	Q2.	Q3.	Q4.	Q5.	Q6.	Q7.	Q8.	Q9.	Q10.
D	B	A	D	C	C	B	C	B	C
Q11.	**Q12.**	**Q13.**	**Q14.**	**Q15.**	**Q16.**	**Q17.**	**Q18.**	**Q19.**	**Q20.**
C	C	B	B	B	A	A	D	B	D
Q21.	**Q22.**	**Q23.**	**Q24.**	**Q25.**	**Q26.**	**Q27.**	**Q28.**	**Q29.**	**Q30.**
A	B	B	B	B	A	A	A	B	C
Q31.	**Q32.**	**Q33.**	**Q34.**	**Q35.**	**Q36.**	**Q37.**	**Q38.**	**Q39.**	**Q40.**
B	B	D	D	A	C	B	B	D	C
Q41.	**Q42.**	**Q43.**	**Q44.**	**Q45.**	**Q46.**	**Q47.**	**Q48.**	**Q49.**	**Q50.**
C	C	B	D	A	B	D	B	C	C
Q51.	**Q52.**	**Q53.**	**Q54.**	**Q55.**	**Q56.**	**Q57.**	**Q58.**	**Q59.**	**Q60.**
B	C	D	A	C	B	D	B	D	C