

Sample-Paper

10th Physics

1. Which of the following statement is true regarding distance and displacement.
- (i) Distance is scalar whereas displacement is a vector
 - (ii) Distance is always positive whereas displacement can be negative.
 - (iii) Maximum value of displacement can be equal to distance but not greater than it.
- (a) only (i)
 - (b) Both (i) and (ii)
 - (c) Only (ii)
 - (d) All of the above

Ans: d

2. A body is undergoing uniform circular motion its acceleration is
- (a) Zero
 - (b) Towards the centre
 - (c) perpendicular to velocity
 - (d) Both (b) & (c)

Ans: b

3. Which of the following is cause of inertia?
- (a) mass
 - (b) velocity
 - (c) Acceleration
 - (d) force

Ans: a

4. If the mass of the earth is reduced to half of its present value, but its radius remains same, what will be the value of acceleration due to gravity.
- (a) g
 - (b) $3g$
 - (c) $4g$
 - (d) $2g$

Ans: c

5. Which energy conversion takes place in an electric fan

- (a) Electrical energy to Heat energy
- (b) Electrical energy to Potential energy
- (c) Electrical energy to electrical energy
- (d) Electrical energy to Mechanical energy

Ans: d

6. Ultrasonography makes use of which of the following waves?

- (a) Ultrasound waves
- (b) Ultrasonic waves
- (c) Ultraviolet waves
- (d) None of the above

Ans: a

7. Which of the following is incorrect about the buoyant force?

- (i) Buoyant force depends on the density of the liquid.
 - (ii) Buoyant force is equal to the weight of the object
 - (iii) Buoyant force can be calculated by wearing volume of liquid displaced by the object.
- (a) (i) is incorrect
 - (b) (ii) and (iii) are incorrect
 - (c) All of the above are incorrect
 - (d) Only (iii) is incorrect

Ans: d

8. What is the SI unit of impulse?

- (a) Kg ms
- (b) Kg ms⁻¹
- (c) Kg ms⁻²
- (d) Kg ms²

Ans: b

9. A body is thrown in vertically upward direction with velocity 100 ms⁻¹. What is the maximum height attained by it. ($g = 10 \text{ ms}^{-2}$)

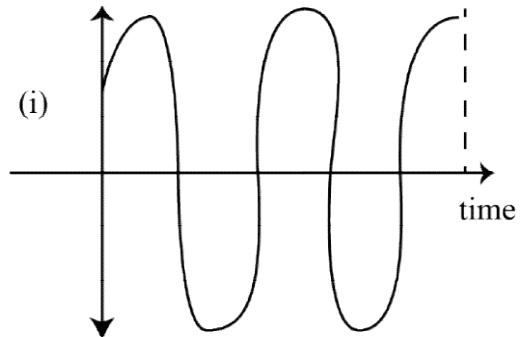
- (a) 50 m
- (b) 500 m
- (c) 4500 m

(d) 5000 m

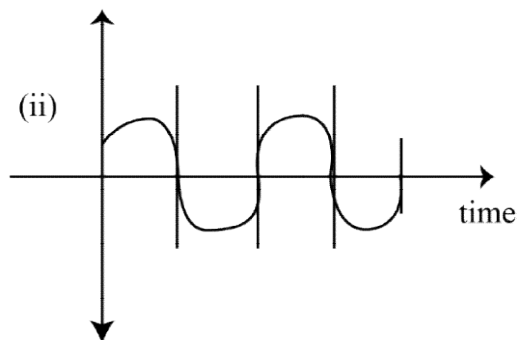
Ans: b

10. Which of the following has a greater frequency?

Distances



Distances



- (a) (i)
- (b) (ii)
- (c) Both have same frequency
- (d) Can't be calculated

Ans: c

10th Biology

1. Where are the essential proteins and lipids required for cell membrane, manufactured?
 - (a) Cash chromosomes
 - (b) Mitochondria
 - (c) Ribosomes
 - (d) Endoplasmic Reticulum
- (d)
2. What is the size of the prokaryotic cell?
 - (a) 1 to 10 micrometres

- (b) 10 to 20 micrometres
- (c) 20 to 30 micrometres
- (d) 1 to 100 micrometres

(a)

3. Which type of epithelium is found in the cornea of the eye?

- (a) squamous epithelium
- (b) cuboidal epithelium
- (c) columnar epithelium
- (d) stratified epithelium

(d)

4. Which of the following is best defined as dead and lignified tissues?

- (a) Apical meristematic tissue
- (b) Collenchyma tissue
- (c) Sclerenchyma tissue
- (d) Permanent tissues

(c)

5. _____ is not found in Xylem tissues

- (a) Xylem parenchyma
- (b) Tracheids
- (c) Vessels
- (d) Sieve tubes

(d)

6. A student observed large, thin-walled cells with a single large vacuole, under a microscope. Which type of tissue is observed by him/her under the microscope?

- (a) Sclerenchyma
- (b) Parenchyma
- (c) Xylem
- (d) Collenchyma

(b)

7. _____ have cell walls made up of chitin

- (a) Green plants
- (b) Fungi
- (c) Bacteria
- (d) Human foetus

(b)

8. Most of the paramecium move with the help of _____

- (a) Cilia
- (b) Villi
- (c) Oral groove
- (d) Paramecium are stationary

(a)

9. Which organelle in the cell is called a Protein Factory?

- (a) Lysosome
- (b) Vacuoles
- (c) Ribosome
- (d) Mitochondria

(c)

10. The plastid which traps solar energy during photosynthesis in plants is _____

- (a) Ultraplast
- (b) Chloroplast
- (c) Chromoplast
- (d) Leucoplast

(b)

10th Chemistry

1. A gas with valency 2, has an atomic number of

- (A) 12 (B) 8 (C) 18 (D) 2

Ans : (B)

2. Which of the following elements contains only two electrons on the outermost shell?

- (A) Helium (B) Beryllium (C) Magnesium (D) all of these

Ans : (D)

3. Choose the incorrect pair

- (A) H_2SO_4 — 96 u (B) HNO_3 — 63 u (C) H_2CO_3 — 62 u (D) H_3PO_4 — 98 u

Ans : (A)

4. Which of the following molecular formula is correct ?

- (A) $\text{Ca}_3(\text{PO}_4)_2$ (B) $\text{Mg}(\text{SO}_4)_2$ (C) $(\text{NH}_4)_3\text{SO}_4$ (D) NaCO_3

Ans : (A)

5. Select the pair of isobars from the following

$^{37}_{17}\text{A}$, $^{35}_{17}\text{B}$, $^{37}_{18}\text{C}$, $^{36}_{18}\text{D}$, $^{38}_{19}\text{E}$

(A) A and B (B) A and C (C) C and E (D) C and D

Ans : (B)

6. The density of water is maximum at

(A) 4 K (B) 283 K (C) 277°C (D) 277 K

Ans : (D)

7. Which of the following does not undergo sublimation ?

(A) Iodine (B) Ammonium carbonate (C) Camper (D) Naphthalene

Ans : (B)

8. Separation of Pure solid from its solution can be alone by

(A) Chromatography (B) Centrifugation (C) Distillation (D) Crystallisation

Ans : (D)

9. Maximum number of electrons that can be accommodated in a shell

(A) 2n (B) 2n² (C) 2n³ (D) 4n³

Ans : (B)

10. Formula mass unit of washing soda ($\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$) is –

(A) 296 (B) 276 (C) 286 (D) 196

Ans : (C)

10th Maths

1. If $(x + 1)$ is a factor of the polynomial $3x^2 - Kx$ then $K =$

(A) 0 (B) ± 5 (C) -1 (D) -3

Ans : D

2. If $x^{1/3} + y^{1/3} + z^{1/3} = 0$, then

(A) $x + y + z = 27xyz$ (B) $x^3 + y^3 + z^3 = 0$
(C) $x^3 + y^3 + z^3 = 27xyz$ (D) $(x + y + z)^3 = 27xyz$

Ans : D

3. Bisectors of $\angle B$ and $\angle C$ in $\triangle ABC$ meet at O, then $\angle BOC = ?$

(A) $90 + \frac{1}{2}\angle A$ (B) $90 - \frac{1}{2}\angle A$
(C) $180 + \frac{1}{2}\angle A$ (D) $180 - \frac{1}{2}\angle A$

Ans : A

4. If $4^{2x-1} - 16^{x-1} = 384$, then $x = ?$

- (A) $-\frac{3}{4}$ (B) $\frac{11}{4}$ (C) $\frac{9}{4}$ (D) $3\frac{3}{4}$

Ans : B

5. If $x^2 + y^2 = 9$ and $xy = 8$, then $x + y = ?$

- (A) 25 (B) 5 (C) -5 (D) ± 5

Ans : D

6. A and B have some coins. If A gives 100 coins to B then B will have twice the number of coins left with A. Instead if B gives 40 coins to A then A will have thrice the number of coins left with B. How many more coins does A have than B ?

- (A) 64 (B) 88 (C) 75 (D) 96

Ans : B

7. $\triangle ABC$ and $\triangle DBC$ are two isosceles triangles on the same base and the vertices A and D are on the same side of BC. If AD is extended to intersect BC at P then, which is false ?

- (A) $\triangle ABD \cong \triangle ACD$ (B) $\triangle ABP \cong \triangle ACP$
(C) AP bisects $\angle A$ and $\angle D$ (D) AP is not perpendicular bisector of BC

Ans : D

8. If $x + \frac{1}{x} = a + b$ and $x - \frac{1}{x} = a - b$, then

- (A) $ab = 1$ (B) $a = b$ (C) $ab = 2$ (D) $a + b = 0$

Ans : A

9. If $4^{44} + 4^{44} + 4^{44} + 4^{44} = 4^x$, then x is

- (A) 45 (B) 44 (C) 46 (D) 176

Ans : A

10. A teacher wanted to distribute 900 chocolates among the students of the class. Each boy received 12 chocolates and each girl received 6 chocolates. If each girl had been given 10 chocolates, then each boy would have received 5 chocolates. Find the number of student in the class.

- (A) 80 (B) 90 (C) 100 (D) 110

Ans : D

11. If $N = \frac{4+\sqrt{5}}{4-\sqrt{5}} + \frac{4-\sqrt{5}}{4+\sqrt{5}}$ then N equals

- (A) $\frac{42}{11}$ (B) $2\sqrt{2}$
(C) $\frac{\sqrt{5}}{2}$ (D) $\frac{2}{\sqrt{\sqrt{5}+1}}$

Ans : A

12. Find the value of $a+b$ so that the polynomial $x^3 + 10x^2 + ax + b$ is exactly divisible by $x - 1$ and $x - 2$.

- (A) 11 (B) -11 (C) 12 (D) -12

Ans : B

13. D, E and F are mid-points of sides BC, CA and AB respectively of $\triangle ABC$. Then $\triangle DEF$ is congruent to triangle

(A) ABC (B) AEF (C) BFD, CDE (D) AFE, BFD, CDE

Ans : D

14. If $2^x \cdot 3^y \cdot 5^z = 2160$, then value of $3^x \cdot 2^{-y} \cdot 5^{-z}$ is

(A) $2\frac{1}{40}$ (B) $1\frac{3}{40}$ (C) $3\frac{1}{40}$ (D) $4\frac{3}{40}$

Ans : A

15. Find the value of a, if $(x + 2)$ is a factor of the polynomial $f(x) = x^3 + 13x + ax + 20$.

(A) -15 (B) 20 (C) 25 (D) -7

Ans : D

16. If $2x = t + \sqrt{t^2 + 4}$ and $3y = t - \sqrt{t^2 + 4}$ then value of y when $x = \frac{2}{3}$ is

(A) -2 (B) +1 (C) -1 (D) 2

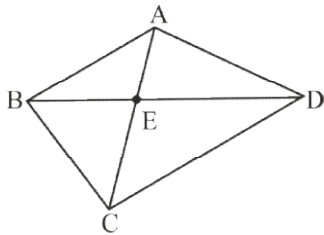
Ans : C

17. In $\triangle ABC$, the medians AD, BE and CF pass through G. If BG = 8 then BE is ____

(A) 12 (B) 6 (C) 3 (D) 1

Ans : A

18. In figure. ABCD is a quadrilateral in which AB = AD and BC = CD, then which is false



(A) AC bisects $\angle A$ and $\angle C$ (B) BE = ED
(C) $\angle ABC = \angle ADC$ (D) Diagonals bisect each other at right angles

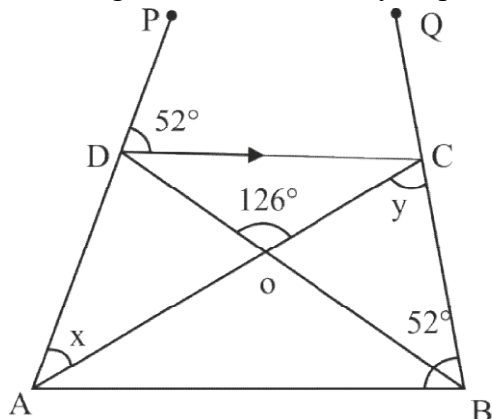
Ans : D

19. If the volumes of two cones are in the ratio 1 : 4 and their diameters are in the ratio 4 : 5, then the ratio of their heights is

(A) 1 : 4 (B) 5 : 4 (C) 5 : 16 (D) 25 : 64

Ans : D

20. In the figure values of x and y respectively are



(A) 25° & 101°

(B) 27° & 131°

(C) 52° & 113°

(D) 48° & 68°

Ans : A