



Class 12 Sample Question: (PCM)

English:

The environment is the natural world around us, including the air we breathe, the water we drink, and the land we live on. It is essential for our survival, as it provides us with the resources we need to live.

The environment is also fragile, and it can be easily damaged by human activities. Pollution, deforestation, and climate change are just a few of the ways that we are harming our environment.

It is important to protect our environment for the sake of future generations. We can do this by reducing our consumption of resources, recycling and reusing materials, and supporting sustainable practices.

1. What is the main purpose of the environment?

- A. To provide us with the resources we need to live.
- B. To protect us from harm.
- C. To provide us with beauty and inspiration.
- D. All of the above.

2. What are some of the ways that we are harming our environment?

- A. Pollution
- B. Deforestation
- C. Climate change
- D. All of the above.

3. Identify the sentence with a grammatical error:

- (A) She have been studying for the exam all week.
- (B) He goes to the gym every day to keep fit.
- (C) They doesn't like spicy food.
- (D) I have already seen that movie twice.

4. Choose the correctly spelled word:

- (A) Rhythem
- (B) Embarrassment
- (C) Aggresive
- (D) Neccessary

5. The manager gave her the green light to proceed with the project. Write the meaning of the underlined phrase.

- (A) stopped her
- (B) warned her
- (C) approved her
- (D) criticized her

Aptitude:

6. What number comes next in the series: 4, 9, 16, 25, _____.

- (A) 30
- (B) 36
- (C) 32
- (D) 40

7. If all dogs are loyal and some animals are loyal, which of the following statements must be true?

- (A) All dogs are animals.
- (B) Some animals are dogs.
- (C) All loyal animals are dogs.
- (D) All loyal dogs are animals.

8. What was the day on 15th August 1947 ?

- (A) Friday (B) Saturday
(C) Sunday (D) Thursday

9. Rita told Mani, "The girl I met yesterday at the beach was the youngest daughter of the brother-in-law of my friend's mother." How is the girl related to Rita's friend?

- (A) Cousin (B) Daughter
(C) Friend (D) Aunt

10. If in a certain language, MADRAS is coded as NBESBT, how is BOMBAY coded in that code?

- (A) CPNCBX (B) CPNCBZ
(C) CPOCBZ (D) CQOCBZ

PHYSICS

11. Two nucleons are at a separation of 1 fermi. The net force between them is F_1 , if both are neutrons, F_2 if both are protons and F_3 , if one is a proton and the other is a neutron

- (A) $F_1 = F_2 > F_3$
(B) $F_1 = F_2 = F_3$
(C) $F_1 < F_2 < F_3$
(D) $F_1 = F_2 < F_3$

12. The voltage of an A.C. source varies with time according to the equation $V=50\sin 100\pi t \cos 100\pi t$, where t is in seconds and V is in volts. Then:

(A) The peak voltage of the source is 100V.

(B) The peak voltage of the source is $\frac{100}{\sqrt{2}}$

(C) The peak voltage of the source is 25V.

(D) The frequency of the source is 50 Hz.

13. A glass plate of refractive index, 1.5 is coated with a thin layer of thickness t and refractive index **1.8**. Light of wavelength **648 nm** traveling in air is incident normally on the layer. It is partly reflected at upper and lower surfaces of the layer and the rays interfere constructively is?

(A) 30nm

(B) 60nm

(C) 90nm

(D) 120nm

14. A toroid wound with 100 turns/m of wire carries a current of 3A. The core of toroid is made of iron having relative magnetic permeability of $\mu_r=5000$ under given conditions. The magnetic field inside the iron is _____

(Take $\mu_0=4\pi\times 10^{-7}\text{TmA}^{-1}$)

(A) 0.15T

(B) 188T

(C) 1.88T

(D) 0.47T

15. Electrons in the atom are held to the nucleus by

(A) Nuclear Force

(B) Coulomb's Force

(C) Gravitational Force

(D) Van Der Waal's Force

CHEMISTRY

16. The average osmotic pressure of human blood is 7.8 bar at 37°C. What is the concentration of an aqueous solution of NaCl that could be used in the bloodstream?

- (A) 0.15 mol L⁻¹ (B) 0.30 mol L⁻¹
(C) 0.60 mol L⁻¹ (D) 0.45 mol L⁻¹

17. There is a considerable increase in covalent radius from N to P. However, from As to Bi only a small increase in covalent radius is observed. This is due to

- (A) Increase in number of shells
(B) Increase in valence electrons
(C) Increase in ionization enthalpy
(D) The presence of completely filled d and/or f orbitals

18. In Duma's method of estimation of nitrogen, 0.35 g of an organic compound gave 55 ml of nitrogen collected at 300 K temperature and 715 mm pressure. The percentage composition of nitrogen in the compound would be:

(Aqueous tension at 300 K = 15 mm)

- (A) 16.45 % (B) 17.45 %
(C) 14.45 % (D) 15.5 %

19. A tertiary butyl carbocation is more stable than a secondary butyl carbocation because of which of the following?

- (A) -I effect of -CH₃ groups (B) +R effect of -CH₃ groups
(C) -R effect of -CH₃ groups (D) Hyperconjugation

20. In a galvanic cell, the half-cell reaction occurring at the anode is represented as:

- (A) Oxidation, loss of electrons, and reduction of cations from the electrolyte.
- (B) Oxidation, gain of electrons, and reduction of cations from the electrolyte.
- (C) Reduction, loss of electrons, and oxidation of anions from the electrolyte.
- (D) Reduction, gain of electrons, and oxidation of anions from the electrolyte.

MATHEMATICS

21. Find the degree of the differential equation : $\left(1 + \frac{dy}{dx}\right)^3 = \left(\frac{dy}{dx}\right)^2$

- (A) 0
- (B) 1
- (C) 2
- (D) 3

22. If p and q are the lengths of the perpendiculars from the origin on the tangent and the normal to the curve

$$x^{\frac{2}{3}} + y^{\frac{2}{3}} = a^{\frac{2}{3}}, \text{ then } 4p^2 + q^2 =$$

- (A) a
- (B) a^2
- (C) $2a^2$
- (D) $5a^2$

23. The equations to a pair of opposite sides of a parallelogram are $X^2 - 5X + 6 = 0$ and $Y^2 - 6Y + 5 = 0$. The equation to its diagonals are ____.

- (A) $X + 4Y = 13$ and $Y = 4X - 7$
- (B) $4X + Y = 13$ and $4Y = X - 7$
- (C) $4X + Y = 13$ and $Y = 4X - 7$
- (D) $Y - 4X = 13$ and $Y + 4X = 7$

24. $\int_{-1}^1 \frac{\sin x - x^2}{3 - |x|} dx =$

(A) 0

(B) $2 \int_0^1 \frac{\sin x}{3 - |x|} dx$

(C) $\int_0^1 \frac{-2x^2}{3 - |x|} dx$

(D) $2 \int_0^1 \frac{\sin x - x^2}{3 - |x|} dx$

25. A ball is dropped from a height of 96 feet and it rebounds $\frac{2}{3}$ of the height it falls. If it continues to fall and rebound. Find the total distance that the ball can travel before coming to rest.

(A) 240 ft

(B) 360 ft

(C) 290 ft

(D) 480 ft

Answers:

1.D 2.D 3.C 4.B 5.C 6.B 7.B 8.A 9.A 10.B 11.B 12.C 13.C
14.C 15.B 16.A 17.D 18.A 19.D 20.A 21.D 22.B 23.C 24.C 25.D