



Educamy Scholarship & Aptitude Test

IIT JEE | NEET UG | Class 10 - 11

**STUDENTS PRESENTLY STUDYING IN
CLASS-11th (Engineering)**

SAMPLE TEST PAPER

**₹5 CRORE SCHOLARSHIP
REWARD**

Exam Pattern: Phy : 10 | Chem : 10 | Math: 10 - Total Question: 30

📍 Senco Building, Near Petrol Pump, Boring Canal Road, Patna - 1
📍 4th floor, AMS Park, Boring Road Chauraha, Patna - 1
☎ 95706 99990 | 95706 99991





EDUSAT (EDUCAMY SCHOLASTIC APTITUDE TEST)

Course for JEE 2027-2028

SAMPLE TEST PAPER

[For Students presently in Class 11th going to Class 12th]

DURATION : 60 Minutes

M.MARKS : 120

General Instructions:

1. This Question paper contains FOUR Parts, I to IV (Physics, Chemistry & Mathematics).
2. This Question Paper contains 8 pages including the cover page.
3. This question paper contains total **30 questions** (10 questions each in **Physics, Chemistry, Mathematics**).
4. The Question Paper has blank spaces at the bottom of each page for rough work. No additional sheets will be provided for rough work.
5. Blank papers, clip boards, log tables, slide rule, calculators, cellular phones, pagers and electronic gadgets, in any form, are NOT allowed.
6. The **OMR** (Optical Mark Recognition) sheet shall be provided separately.

Answering on the OMR

7. In all the parts, each question will have **4 choices** out of which **only one choice is correct**.
8. Darken the bubble with **Ball Pen (Blue or Black) ONLY**.

Filling OMR

9. On the OMR sheet, fill all the details properly and completely, otherwise your OMR will not be checked.

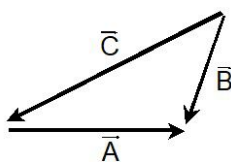
Marking Scheme:

10. For each question you will be awarded **(+4) marks** if you darken the bubble corresponding to the correct answer. There is no negative marking.

Name :

SECTION-I (PHYSICS)**STRAIGHT OBJECTIVE TYPE**

1. For the figure:

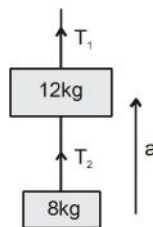


- (A) $\vec{A} + \vec{B} = \vec{C}$ (B) $\vec{B} + \vec{C} = \vec{A}$
 (C) $\vec{C} + \vec{A} = \vec{B}$ (D) $\vec{A} + \vec{B} + \vec{C} = 0$
2. Two forces of 4 dyne and 3 dyne act upon a body. The resultant force on the body can only be:
 (A) more than 3 dynes (B) more than 4 dynes
 (C) between 3 and 4 dynes (D) between 1 and 7 dynes
3. Which of the sets given below may represent the magnitudes of three vectors adding to zero?
 (A) 2, 4, 8 (B) 4, 8, 16 (C) 1, 2, 1 (D) 0.5, 1, 2
4. A particle moves along the x-axis in such a way that its x-coordinate varies with time as $x = 2 - 5t + 6t^2$. The initial velocity and acceleration of particle will respectively be
 (A) $-5 \text{ m/s}, 12 \text{ m/s}^2$ (B) $5 \text{ m/s}, -12 \text{ m/s}^2$
 (C) $-5 \text{ m/s}, -12 \text{ m/s}^2$ (D) $5 \text{ m/s}, 12 \text{ m/s}^2$
5. At an instant t , the coordinates of a particle are $x = at^2$, $y = bt^2$ and $z = 0$, then its velocity at the instant t will be
 (A) $t\sqrt{a^2 + b^2}$ (B) $2t\sqrt{a^2 + b^2}$ (C) $\sqrt{a^2 + b^2}$ (D) $2t^2\sqrt{a^2 + b^2}$
6. Two projectiles A and B are projected with angle of projection 15° for the projectile A and 45° for the projectile B. If R_A and R_B be the horizontal range for the two projectiles, then
 (A) $R_A < R_B$ (B) $R_A = R_B$ (C) $R_A > R_B$
 (D) the information is insufficient to decide the relation of R_A with R_B

SPACE FOR ROUGH WORK

7. A body of mass 8 kg is hanging from another body of mass 12 kg. The combination is being pulled by a string with an acceleration of 2.2 ms^{-2} . The tension T_1 and T_2 will be respectively:

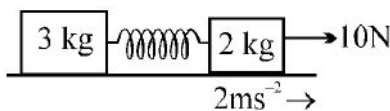
(use $g = 9.8 \text{ m/s}^2$)



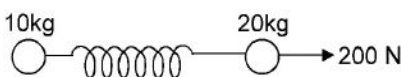
- (A) 200 N, 80 N (B) 220 N, 90 N
(C) 240 N, 96 N (D) 260 N, 96 N
8. A fireman wants to slide down a rope. The rope can bear a tension of $\frac{3}{4}$ the of the weight of the man.

With what minimum acceleration should the fireman slide down:

- (A) $\frac{g}{3}$ (B) $\frac{g}{6}$ (C) $\frac{g}{4}$ (D) $\frac{g}{2}$
9. Find the acceleration of 3 kg mass when acceleration of 2 kg mass is 2 ms^{-2} as shown in figure.



- (A) 3 ms^{-2} (B) 2 ms^{-2} (C) 0.5 ms^{-2} (D) zero
10. Two masses of 10 kg and 20 kg respectively are connected by a massless spring as shown in figure. A force of 200 N acts on the 20 kg mass at the instant when the 10 kg mass has an acceleration of 12 ms^{-2} , the acceleration of the 20 kg mass is:



- (A) 2 ms^{-2} (B) 4 ms^{-2} (C) 10 ms^{-2} (D) 20 ms^{-2}

SPACE FOR ROUGH WORK

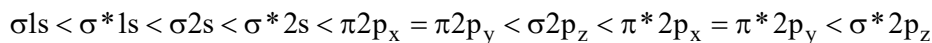
SECTION-II (CHEMISTRY)

STRAIGHT OBJECTIVE TYPE

11. Total number of atoms present in 34 g of NH_3 is
- (A) 4×10^{23} (B) 4.8×10^{21} (C) 2×10^{23} (D) 48×10^{23}
12. Which of the following species is isoelectronic with CO ?
- A. HCN B. N_2 C. N_2^+ D. O_2^-
- E. C_2^{2-}
- (A) Only B (B) A, B and E (C) B, C and D (D) A, C and E
13. According to Bohr's theory, the angular momentum of an electron in 5th orbit is
- (A) $\frac{10h}{\pi}$ (B) $\frac{25h}{\pi}$ (C) $\frac{1.5h}{\pi}$ (D) $\frac{2.5h}{\pi}$
14. Which of the following quantum numbers are correct for the outermost electron of sodium atom?
- (A) $n = 4, \ell = 0, m = 0, s = +1/2$ (B) $n = 3, \ell = 0, m = 0, s = -1/2$
- (C) $n = 3, \ell = 1, m = +1, s = +1/2$ (D) $n = 3, \ell = 2, m = -1, s = -1/2$
15. Which of the following transitions will involve maximum amount of energy?
- (A) $\text{M} \rightarrow \text{M}^+ + \text{e}^-$ (B) $\text{M}^- \rightarrow \text{M}^+ + 2\text{e}^-$
- (C) $\text{M}^{2+} \rightarrow \text{M}^{3+} + \text{e}^-$ (D) $\text{M}^+ \rightarrow \text{M}^{2+} + \text{e}^-$

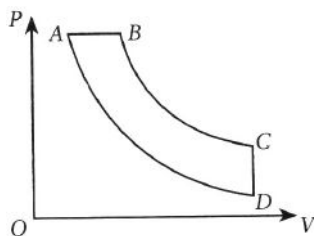
SPACE FOR ROUGH WORK

16. The increasing order of energies of various molecular orbitals of N_2 is given below:

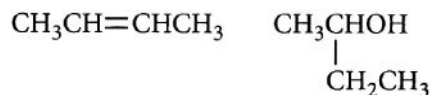


The above sequence is not true for the molecule

- (A) C_2 (B) B_2 (C) O_2 (D) Be_2
17. In the pressure – volume diagram given below, the isochoric, isothermal and isobaric parts respectively, are



- (A) BA, AD, DC (B) DC, CB, BA (C) AB, BC, CD (D) CD, DA, AB
18. The IUPAC name of the molecule $CH_3-C(=O)-C(CH_3)=C(CH_3)-C(=O)OH$ is:
- (A) 4-oxo-2, 3-dimethylpent-2-en-1-oic acid
 (B) 2-carboxy-3-methylpent-2-en-3-one
 (C) 4-carboxy-3-methylpent-3-en-2-one
 (D) 2, 3-dimethyl-4-oxo-pent-2-en-1-oic acid
19. Following types of compounds are studied under which type of isomerism?



- (A) Chain isomerism (B) Tautomerism
 (C) Functional isomerism (D) Stereoisomerism
20. Maximum –I effect is exerted by the group
- (A) $-C_6H_5$ (B) $-OCH_3$ (C) $-Cl$ (D) $-NO_2$

SPACE FOR ROUGH WORK

SECTION-III (MATHEMATICS)**STRAIGHT OBJECTIVE TYPE**

21. The smallest positive integer n for which $\left(\frac{1+i}{1-i}\right)^n = 1$, where $i = \sqrt{-1}$ is:
(A) 1 (B) 2 (C) 3 (D) 4
22. If ${}^{15}P_r = 2730$, then r is:
(A) 3 (B) 4 (C) 5 (D) 6
23. The coefficient of x^{32} in the expansion of $\left(x^4 - \frac{1}{x^3}\right)^{15}$ is:
(A) 273 (B) 546 (C) 1365 (D) 1092
24. If m^{th} term of an A.P. is $\frac{1}{n}$ and the n^{th} term is $\frac{1}{m}$ then the sum of its $(mn)^{\text{th}}$ term is:
(A) $\frac{mn+1}{2}$ (B) $2(m+n)$ (C) $-(m+n)$ (D) $\frac{1}{mn}$
25. The value of $2 \sin \frac{5\pi}{12} \sin \frac{\pi}{12}$ is
(A) $\frac{1}{\sqrt{2}}$ (B) $\sqrt{2}$ (C) $\frac{1}{2}$ (D) $\frac{\sqrt{3}}{2}$

SPACE FOR ROUGH WORK

26. A point P divides the join of A(5, -2) and B(9, 6) internally in the ratio 3 : 1 then co-ordinates of P are
(A) (4, -7) (B) (-4, 7) (C) $\left(\frac{7}{2}, 4\right)$ (D) (8, 4)
27. $\frac{1 + \sin 2x - \cos 2x}{1 + \sin 2x + \cos 2x}$ is:
(A) $\tan 2x$ (B) $\tan x$ (C) $\cot 2x$ (D) $\cot x$
28. If $\frac{3}{10}$ is the probability that an event happens, then the probability that it will not happen is
(A) $\frac{7}{10}$ (B) $\frac{2}{10}$ (C) $\frac{3}{10}$ (D) $\frac{4}{5}$
29. If $\frac{2}{|x-3|} > 5, x \in \mathbb{R}$. Then the value of x is
(A) $\left(\frac{13}{5}, 3\right)$ (B) (2, 3) (C) $\left(3, \frac{17}{5}\right)$ (D) $\left(\frac{13}{5}, 3\right) \cup \left(3, \frac{17}{5}\right)$
30. If A and B are two sets such that $n(A) = 37, n(B) = 26, n(A \cup B) = 51$, then $n(A \cap B) = 51$ is
(A) 10 (B) 12 (C) 14 (D) 15

SPACE FOR ROUGH WORK