

VITEEE 2025 April 21 Question Paper

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| Time Allowed :3 Hour | Maximum Marks :300 | Total Questions :90 |
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General Instructions

Read the following instructions very carefully and strictly follow them:

The test is of 2 hours and 30 minutes duration.

2. The question paper consists of 125 questions. The maximum marks are 200.
3. There are three parts in the question paper consisting of Physics, Chemistry, Biology/Mathematics, Aptitude and English e.

1. A block of mass 2 kg is placed on a smooth horizontal surface. A force of 10 N is applied horizontally on the block. What is the acceleration of the block?

- (1) 2.5 m/s^2
 - (2) 5 m/s^2
 - (3) 10 m/s^2
 - (4) 20 m/s^2
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2. A ray of light strikes a plane mirror at an angle of incidence 30° . What is the angle between the incident ray and the reflected ray?

- (1) 30°
 - (2) 60°
 - (3) 90°
 - (4) 120°
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3. Two point charges $+2 \mu\text{C}$ and $-2 \mu\text{C}$ are placed 0.1 m apart in air. What is the electrostatic force between them?

- (1) 3.6 N
 - (2) 1.8 N
 - (3) 4.2 N
 - (4) 0.72 N
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4. The energy of a photon is $6.6 \times 10^{-19} \text{ J}$. What is the frequency of the photon? (Take Planck's constant $h = 6.6 \times 10^{-34} \text{ Js}$)

- (1) $1 \times 10^{15} \text{ Hz}$
- (2) $5 \times 10^{14} \text{ Hz}$
- (3) $2 \times 10^{15} \text{ Hz}$
- (4) $1 \times 10^{14} \text{ Hz}$

5. A gas expands from volume V to $2V$ at constant pressure P . What is the work done by the gas?

- (1) PV
- (2) $2PV$
- (3) $\frac{PV}{2}$
- (4) Zero

6. How many moles are present in 44 g of CO_2 ?
(Molar mass of $CO_2 = 44 \text{ g/mol}$)

- (1) 1 mol
- (2) 2 mol
- (3) 0.5 mol
- (4) 4 mol

7. Which of the following elements has the smallest atomic radius?

- (1) Na
- (2) Mg
- (3) Al
- (4) Si

8. Which of the following is the major product of the reaction between 1-bromobutane and potassium hydroxide in ethanol?

- (1) Butan-1-ol
- (2) But-2-ene
- (3) Butan-2-ol
- (4) Butane

9. For a first-order reaction, the rate constant is $k = 0.01 \text{ s}^{-1}$. What is the half-life of the reaction?

- (1) 69.3 s
- (2) 100 s
- (3) 10 s
- (4) 7 s

10. Which of the following is a characteristic of a coordination compound?

- (1) It has a definite molecular formula.
- (2) It has a high melting point and is a good conductor of electricity in solid state.
- (3) It contains a central metal atom/ion bonded to a number of ligands.

(4) It is always insoluble in water.

11. What is the standard electrode potential of a half-reaction in which electrons are transferred from Ag^+ to Ag ?

- (1) +0.80 V
 - (2) +0.34 V
 - (3) 0 V
 - (4) -0.76 V
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