



# BITSAT 2026 May 25 Shift 1

## Question Paper (Memory-Based)

Conducted by BITS Pilani

### General Instructions

- (i) **Duration:** The total duration of the examination is 3 hours (180 minutes).
- (ii) **Total Marks:** The complete paper carries a maximum of 390 marks.
- (iii) **Structure:** The paper has 4 Sections:
  - **Part 1:** 30 Multiple Choice Questions (Physics).
  - **Part 2:** 30 Multiple Choice Questions (Chemistry).
  - **Part 3:** 10 Multiple Choice Questions (English Proficiency),  
20 Multiple Choice Questions (Logical Reasoning)
  - **Part 4:** 40 Multiple Choice Questions (Mathematics/Biology)
- (iv) **Compulsory Questions:** All 130 questions are compulsory, and +12 Questions (Optional Extra Questions)
- (v) Each question has four options. Only **one** option is correct.
- (vi) **Correct Answer:** +3 marks.
- (vii) **Incorrect Answer:** -1 (Negative marking).
- (viii) **Unanswered/Marked for Review:** 0 marks.

### English

1. The person with an uncontrollable urge to consume alcohol is called?

- (A) Dipsomaniac
- (B) Kleptomaniac

- (C) Megalomaniac
- (D) Pyromaniac

## PHYSICS

1. A probe is dropped on the moon from a height of 20 m. Both the probe and the moon are initially at the same temperature as the surface of the moon. The specific heat capacity of the probe is  $3 \text{ kJ kg}^{-1} \text{ K}^{-1}$ . If upon impact, the center of mass of the probe instantly comes to rest, calculate the final temperature of the probe. (Assume acceleration due to gravity on the moon  $g_{\text{moon}} = 2 \text{ m/s}^2$ ).

- (A)  $T_{\text{surface}} + 0.0133 \text{ K}$
- (B)  $T_{\text{surface}} + 0.1333 \text{ K}$
- (C)  $T_{\text{surface}} + 1.3333 \text{ K}$
- (D)  $T_{\text{surface}} + 13.333 \text{ K}$

2. Find the ratio of alpha particles scattered at  $60^\circ$  and  $90^\circ$  in the Rutherford alpha-particle scattering experiment.

- (A) 1 : 4
- (B) 4 : 1
- (C) 1 : 2
- (D) 2 : 1

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2. The geometric triple product magnitude  $|\vec{A} \cdot (\vec{B} \times \vec{C})|$  represents which of the following mechanical quantities visually?

- (A) Area of a regular hexagon
- (B) Volume of a parallelepiped
- (C) Surface area of a sphere
- (D) Volume of a regular tetrahedron

## CHEMISTRY

1. A coordination complex with an electronic configuration of  $t_{2g}^3 e_g^2$  is expected to be:

- (A) Strongly colored due to fully allowed transition
  - (B) Intensely blue due to charge transfer
  - (C) Colorless or extremely faintly colored
  - (D) Completely black due to total absorption
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2. Oxidation of D-Glucose with mild bromine water ( $\text{Br}_2/\text{H}_2\text{O}$ ) gives \_\_\_\_\_, while oxidation with strong concentrated  $\text{HNO}_3$  gives \_\_\_\_\_ respectively.

- (A) Saccharic acid, Gluconic acid
  - (B) Gluconic acid, Saccharic acid
  - (C) Glucaric acid, Gluconic acid
  - (D) Sorbose, Fructose
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## MATHEMATICS

1. Given the word BITSAT, in how many ways can they be arranged such that both T are always together?

- (A) 60
  - (B) 120
  - (C) 360
  - (D) 720
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2. Integration of  $|x - 1013|$  limits 0 to 2026 is equal to:

- (A) 1013
  - (B)  $1013^2$
  - (C)  $2 \times 1013^2$
  - (D)  $\frac{1013^2}{2}$
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3. The number of ways to arrange  $n$  distinct persons around a circular table is:

- (A)  $n!$
- (B)  $(n - 1)!$

- (C)  $\frac{n!}{2}$   
(D)  $\frac{(n-1)!}{2}$
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4. The volume of a parallelepiped whose coterminous edges are represented by the vectors  $\vec{a}$ ,  $\vec{b}$ , and  $\vec{c}$  is given by:

- (A)  $\vec{a} \times (\vec{b} \times \vec{c})$   
(B)  $\vec{a} \cdot (\vec{b} \times \vec{c})$   
(C)  $\vec{a} \cdot (\vec{b} \cdot \vec{c})$   
(D)  $\vec{a} \times (\vec{b} \cdot \vec{c})$
- 

5. Three coins are tossed simultaneously. The probability of getting at least one head is:

- (A)  $\frac{1}{8}$   
(B)  $\frac{3}{8}$   
(C)  $\frac{1}{2}$   
(D)  $\frac{7}{8}$

6. Solve the differential equation:  $\frac{dy}{dx} = \cos(x+y) + \sin(x+y)$

- (A)  $\log \left| 1 + \tan \left( \frac{x+y}{2} \right) \right| = x + C$   
(B)  $\log \left| 1 + \tan \left( \frac{x+y}{2} \right) \right| = y + C$   
(C)  $\tan \left( \frac{x+y}{2} \right) = x + C$   
(D)  $\log \left| \sec \left( \frac{x+y}{2} \right) \right| = x + C$