

BITSAT 2025 MAY 30 Question Paper

Time Allowed :3 Hours	Maximum Marks :390	Total questions :130
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General Instructions

Read the following instructions very carefully and strictly follow them:

1. **Exam Mode:** Computer Based Test
2. **BITSAT exam duration:** 3 hours
3. **Medium of Exam:** English
4. **BITSAT exam Sections:**
 - Part I - Physics (30 questions)
 - Part II - Chemistry (30 questions)
 - Part III - English Proficiency (10 questions) and Logical Reasoning (20 questions)
 - Part IV - Mathematics/Biology (40 questions)
5. **Type of Questions:** Multiple Choice Questions (MCQ)
6. **BITSAT Total Questions:** 130 Questions
7. **BITSAT Exam Pattern Total Marks:** 390 Marks

1. The 5th term of an AP is 20 and the 12th term is 41. Find the first term.

- (A) 7
 - (B) 8
 - (C) 9
 - (D) 10
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2. The value of $\sin^2 30^\circ + \cos^2 60^\circ$ is:

- (A) $\frac{1}{2}$
 - (B) 1
 - (C) $\frac{3}{4}$
 - (D) $\frac{1}{4}$
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3. The sum of the infinite geometric series $S = \frac{a}{1-r}$ is 24, and the sum of the first three terms is 21. Find a and r .

- (A) $a = 12, r = \frac{1}{2}$
 - (B) $a = 8, r = \frac{2}{3}$
 - (C) $a = 6, r = \frac{3}{4}$
 - (D) $a = 10, r = \frac{4}{5}$
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4. Find the value of $\sin 75^\circ \cos 15^\circ + \cos 75^\circ \sin 15^\circ$.

- (A) 1
 - (B) $\frac{\sqrt{3}}{2}$
 - (C) $\frac{1}{2}$
 - (D) $\frac{\sqrt{2}}{2}$
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5. Given the sets $A = \{x \mid |x - 2| < 3\}$ and $B = \{x \mid |x + 1| \leq 4\}$, find $A \cap B$.

- (A) $(-1, 3]$

- (B) $(-2, 3)$
 - (C) $(-1, 4)$
 - (D) $(-2, 4)$
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6. The area of a triangle with vertices at points $A(1, 2)$, $B(4, 6)$, and $C(k, 8)$ is 5. Find the value of k .

- (A) 1
 - (B) 2
 - (C) 3
 - (D) 4
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7. A block of mass 5 kg is placed on a frictionless incline of angle 30° . What is the acceleration of the block down the incline? (Take $g = 9.8 \text{ m/s}^2$)

- (A) 9.8 m/s^2
 - (B) 4.9 m/s^2
 - (C) 5.6 m/s^2
 - (D) 3.2 m/s^2
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8. Two resistors, 4Ω and 6Ω , are connected in parallel to a 12 V battery. What is the total current drawn from the battery?

- (A) 3 A
 - (B) 5 A
 - (C) 4 A
 - (D) 6 A
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9. The work function of a metal is 2 eV. What is the threshold frequency for the photoelectric emission? (Take Planck's constant $h = 6.63 \times 10^{-34} \text{ Js}$, $1 \text{ eV} = 1.6 \times 10^{-19} \text{ J}$)

- (A) 4.8×10^{14} Hz
 - (B) 5.2×10^{14} Hz
 - (C) 6.2×10^{14} Hz
 - (D) 7.4×10^{14} Hz
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10. A 2 kg object is moving with a velocity of 5 m/s on a frictionless surface. It collides elastically with a stationary object of mass 3 kg. Find the velocity of the 3 kg object after the collision.

- (A) 3 m/s
 - (B) 4 m/s
 - (C) 5 m/s
 - (D) 2 m/s
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11. The number of moles of CO_2 produced when 2 moles of C_2H_6 are completely burnt is:

- (A) 6
 - (B) 8
 - (C) 12
 - (D) 4
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12. What volume of CO_2 gas at STP is produced by the reaction of 10 g of CaCO_3 with excess HCl ?

- (A) 4.48 L
 - (B) 2.24 L
 - (C) 8.96 L
 - (D) 11.2 L
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13. How many grams of $\text{Al}_2(\text{SO}_4)_3$ are required to produce 10 L of a 0.5 M solution?

(Molar mass = 342 g/mol)

- (A) 1710 g
 - (B) 342 g
 - (C) 68.4 g
 - (D) 85.5 g
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14. Calculate the empirical formula of a compound containing 40% carbon, 6.7% hydrogen, and 53.3% oxygen by mass.

- (A) CH_2O
 - (B) $\text{C}_2\text{H}_4\text{O}$
 - (C) $\text{C}_3\text{H}_6\text{O}_3$
 - (D) CH_4O
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