

BITSAT 2025 May 28 Shift 1 Question Paper

Time Allowed :3 Hours

Maximum Marks :390

Total questions :130

General Instructions

Read the following instructions very carefully and strictly follow them:

1. Duration of Exam: 3 Hours
2. Total Number of Questions: 130 Questions
3. Section-wise Distribution of Questions:
 - Physics - 40 Questions
 - Chemistry - 40 Questions
 - Mathematics - 50 Questions
4. Type of Questions: Multiple Choice Questions (Objective)
5. Marking Scheme: Three marks are awarded for each correct response
6. Negative Marking: One mark is deducted for every incorrect answer.
7. Each question has four options; only one is correct.
8. Questions are designed to test analytical thinking and problem-solving skills.

1. Evaluate the integral $\int xe^{x^2} dx$:

- (A) $\frac{1}{2}e^{x^2} + C$
 - (B) $e^{x^2} + C$
 - (C) $\frac{1}{2}xe^{x^2} + C$
 - (D) $x^2e^{x^2} + C$
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2. The equation of the circle passing through the points (1,2), (4,3), and (2,-1) is:

- (A) $x^2 + y^2 - 6x + 2y + 5 = 0$
 - (B) $x^2 + y^2 - 7x + 4y + 6 = 0$
 - (C) $x^2 + y^2 - 5x + 2y + 3 = 0$
 - (D) $x^2 + y^2 - 6x + 2y + 6 = 0$
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3. Evaluate the integral $\int \frac{x}{x^2+1} dx$:

- (A) $\frac{1}{2} \ln(x^2 + 1) + C$
 - (B) $\ln(x^2 + 1) + C$
 - (C) $\frac{1}{2} \tan^{-1}(x) + C$
 - (D) $\tan^{-1}(x) + C$
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4. If the distance between the points (2, -1) and (k, 3) is 5, then the possible values of k are:

- (A) 2 and 6
 - (B) -1 and 5
 - (C) 1 and 3
 - (D) 0 and 4
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5. If $\tan A + \cot A = 2$, then the value of $\tan^2 A + \cot^2 A$ is:

- (A) 2
 - (B) 4
 - (C) 6
 - (D) 5
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6. The sum of the first 20 terms of the arithmetic progression 7, 10, 13, ... is:

- (A) 470
 - (B) 710
 - (C) 670
 - (D) 770
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7. A body of mass 2 kg is moving with a velocity of 5 m/s. How much work is required to stop the body?

- (A) 10 J
 - (B) 15 J
 - (C) 20 J
 - (D) 25 J
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8. A current of 3 A flows through a resistor of resistance 4 for 2 minutes. The heat produced is:

- (A) 4320 J
 - (B) 4720 J
 - (C) 4960 J
 - (D) 4360 J
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9. A particle starts from rest and accelerates uniformly at 4 m/s^2 . What is the distance covered in the 5th second?

- (A) 36 m
 - (B) 18 m
 - (C) 44 m
 - (D) 20 m
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10. Two charges of +3 C and -3 C are placed 2 cm apart in air. What is the electric potential energy of the system? (Take $k = 9 \times 10^9 \text{ Nm}^2/\text{C}^2$)

- (A) -0.05 J
- (B) -4.05 J
- (C) +0.405 J

(D) -40.5 J

11. How many moles of oxygen are required to completely combust 1 mole of propane (C_3H_8)?

- (A) 4 moles
 - (B) 5 moles
 - (C) 6 moles
 - (D) 3 moles
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12. Which of the following elements has the highest electronegativity?

- (A) Oxygen
 - (B) Fluorine
 - (C) Chlorine
 - (D) Nitrogen
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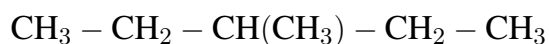
13. For the reaction: $\text{N}_2(g) + 3\text{H}_2(g) \rightarrow 2\text{NH}_3(g)$, the enthalpy change (ΔH) is -92.4 kJ/mol . What type of reaction is it?

- (A) Endothermic
 - (B) Exothermic
 - (C) Isothermal
 - (D) Photochemical
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14. Which of the following molecules has the highest bond angle?

- (A) CH_4
 - (B) NH_3
 - (C) H_2O
 - (D) CO_2
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15. What is the IUPAC name of the compound:



- (A) 3-Methylpentane

- (B) 2-Methylpentane
 - (C) 3-Methylbutane
 - (D) 2-Methylbutane
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16. Choose the word that is most similar in meaning to: “Candid”

- (A) Secretive
 - (B) Frank
 - (C) Shy
 - (D) Clever
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17. Identify the part of the sentence that contains an error:

He did not knew that the train had already left.

- (A) He did
 - (B) not knew
 - (C) that the train
 - (D) had already left
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18. Choose the best alternative to improve the sentence:

Despite of being tired, she continued working.

- (A) Although she is tired
 - (B) Though being tired
 - (C) Despite being tired
 - (D) Even though tired
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19. Choose the word opposite in meaning to: “Benevolent”

- (A) Kind
 - (B) Generous
 - (C) Cruel
 - (D) Helpful
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