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 $k = 9 \times 10^9$ Nm^2/C^2)

(A) -0.05 J

(B) -4.05 J

(C) $+0.405$ J

(D) $-40.5\,\text{J}$

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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: $N_2(g) + 3H_2(g) \rightarrow 2NH_3(g)$, the enthalpy change ($\Delta H$) 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:

$$CH_3 - CH_2 - CH(CH_3) - CH_2 - CH_3$$

(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
