GATE 2026 ST Question Paper

Time Allowed :3 Hour	Maximum Marks :100	Total Questions :65

General Instructions

Please read the following instructions carefully:

1. This question paper is divided into three sections:
   - **General Aptitude (GA):** 10 questions (5 questions × 1 mark + 5 questions × 2 marks) for a total of 15 marks.
   - **Environmental Science and Engineering + Engineering Mathematics:**
     - **Part A (Mandatory):** 36 questions (1 questions × 1 mark + 19 questions × 2 marks) for a total of 55 marks.
     - **Part B (Section 1):** Candidates can choose either Part B1 (Surveying and Mapping) or Part B2 (Section 2). Each part contains 16 questions (8 questions × 1 mark + 11 questions × 2 marks) for a total of 30 marks.
2. The total number of questions is **65**, carrying a maximum of **100 marks**.
3. The duration of the exam is **3 hours**.
4. Marking scheme:
   - For 1-mark MCQs, $\frac{1}{3}$ mark will be deducted for every incorrect response.
   - For 2-mark MCQs, $\frac{2}{3}$ mark will be deducted for every incorrect response.
   - No negative marking for numerical answer type (NAT) questions.
   - No marks will be awarded for unanswered questions.
5. Ensure you attempt questions only from the optional section (Part B1 or Part B2) you have selected.
6. Follow the instructions provided during the exam for submitting your answers.

1. Let X be a random variable having discrete uniform distribution on $\{1, 3, 5, 7, \ldots, 99\}$. Then $E(X \mid X$ is not a multiple of 15) equals

(A) $\frac{2365}{47}$
(B) $\frac{2365}{50}$
(C) 50
(D) 47

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2. In a testing of hypothesis problem, which one of the following statements is true?

(A) The probability of the Type-I error cannot be higher than the probability of the Type-II error
(B) Type-II error occurs if the test accepts the null hypothesis when the null hypothesis is actually false
(C) Type-I error occurs if the test rejects the null hypothesis when the null hypothesis is actually false
(D) The sum of the probability of the Type-I error and the probability of the Type-II error should be 1

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3. Let $\{W(t)\}_{t\geq 0}$ be a standard Brownian motion. Which one of the following statements is NOT true?

(A) $E[W(7)] = 0$
(B) $E[W(5)W(9)] = 7$
(C) $2W(1)$ is normally distributed with mean 0 and variance 4
(D) $E[W(5) \mid W(3) = 3] = 3$

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4. Two fair dice, one having red and another having blue color, are tossed independently once. Let A be the event that the die having red colour will show 5 or 6. Let B be the event that the sum of the outcomes will be 7 and let C be the event that the sum of the outcomes will be 8. Then which one of the following statements is true?

(A) A and B are independent as well as A and C are independent
(B) A and B are independent, but A and C are not independent
(C) A and C are independent, but A and B are not independent
(D) Neither A and B are independent, nor A and C are independent

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5. Let X be a random variable taking only two values, 1 and 2. Let $M_X(t)$ be the moment generating function of X. If the expectation of X is $\frac{10}{7}$, then the fourth derivative of $M_X(t)$ evaluated at 0 equals

(A) $\frac{52}{7}$
(B) $\frac{67}{7}$
(C) $\frac{48}{7}$
(D) $\frac{60}{7}$

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6. Let A be a 3×3 real matrix and let I_3 be the 3×3 identity matrix. Which one of the following statements is NOT true?

(A) If the row-reduced echelon form of A is I_3, then zero is not an eigenvalue of A
(B) If zero is not an eigenvalue of A, then the row-reduced echelon form of A is I_3
(C) If A has three distinct eigenvalues, then the row-reduced echelon form of A is I_3
(D) If the system of equations $Ax = b$ has a solution for every 3×1 real column vector b, then the row-reduced echelon form of A is I_3

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7. A cube is to be cut into 8 pieces of equal size and shape. Here, each cut should be straight and it should not stop till it reaches the other end of the cube. The minimum number of such cuts required is

(A) 3
(B) 4
(C) 7
(D) 8
