BCECE 2026 May 30 (Mathematics)

Question Paper (Memory-Based) PDF

Conducted by BCECEB

General Instructions

(i) The question paper will consist of 10 Multiple Choice Questions (MCQs).

(ii) The duration of the Physics examination will be 1 hour 30 minutes (90 minutes).

(iii) The examination will be conducted in offline (pen-and-paper/OMR-based) mode.

(iv) For every correct answer, 4 marks will be awarded and for every incorrect answer, 1 mark will be deducted as negative marking.

1. For $I = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$, if $A = \begin{bmatrix} a & b \\ c & -a \end{bmatrix}$ be such that $A^2 = I$, then :

(1) $1 + a^2 + bc = 0$

(2) $1 - a^2 - bc = 0$

(3) $1 - a^2 + bc = 0$

(4) $1 + a^2 - bc = 0$

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2. If $x = at^4$ and $y = 2at^2$, then $\frac{d^2y}{dx^2}$ is equal to :

(1) $-\frac{1}{4at^4}$

(2) $-\frac{2}{t^3}$

(3) $-\frac{1}{t}$

(4) $-\frac{1}{2at^6}$

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3. If $\begin{bmatrix} 1 & 3 \\ 4 & 5 \end{bmatrix} \begin{bmatrix} x \\ 2 \end{bmatrix} = \begin{bmatrix} 5 \\ 6 \end{bmatrix}$, then value of x is :

(1) 1

(2) 0

(3) -1

(4) 3

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4. Let $f(x) = x^3 - 6x^2 + 12x - 3$, then at $x = 2$, $f(x)$ has :

(1) a maximum

(2) a minimum

(3) both a maximum and a minimum

(4) neither a maximum nor a minimum

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5. The integral of the function $\frac{1}{9-4x^2}$ is :

(1) $\frac{1}{22}\log_e\left|\frac{3+x}{3-x}\right| + C$

(2) $\frac{1}{12}\log_e\left|\frac{3+2x}{3-2x}\right| + C$

(3) $\frac{1}{2}\log_e\left|\frac{7+x}{7-x}\right| + C$

(4) $\frac{1}{12}\log_e\left|\frac{3-2x}{3+2x}\right| + C$

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6. The interval, in which the function $f(x) = \frac{3}{x} + \frac{x}{3}$ is strictly decreasing, is :

(1) $(-\infty, -3) \cup (3, \infty)$

(2) $(-3, 3)$

(3) $(-3, 0) \cup (0, 3)$

(4) $\mathbb{R} - \{0\}$

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7. The exponent of 7 in $^{100}C_{50}$ is :

(A) 4

(B) 2

(C) 1

(D) 0

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8. If $0 < r < s \leq n$ and ${}^{n}P_{r} = {}^{n}P_{s}$, then the value of $(r - s)$ is :

(A) -1

(B) $-2n - 1$

(C) -2

(D) $-2n - 2$

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9. Five candidates are contesting an election, and three members are to be elected. A voter can vote for any number of candidates, but not more than the number of members to be elected. The number of ways a person can cast their vote is :

(A) 5

(B) 15

(C) 20

(D) 25

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10. The product of first n odd natural numbers is :

(A) $({}^{2n}C_{n})({}^{n}P_{n})$

(B) $(1/2)({}^{2n}C_{n})({}^{n}P_{n})$

(C) $(1/2^{n})({}^{2n}C_{n})({}^{n}P_{n})$

(D) $(1/2^{2n})({}^{2n}C_{n})({}^{n}P_{n})$
