AP ECET 2025 May 6 Shift 1 Question Paper

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1. The coefficient of $(y-2)$ in the Taylor's series expansion of $f(x,y)=x^2+xy+y^2$ in powers of $(x-1)$ and $(y-2)$ is:

(1) 5

(2) 3

(3) 2

(4) 1

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2. The curvature of the straight line $y=2x+3$ at $(1,5)$ is:

(1) 2

(2) 0

(3) $\frac{1}{2}$

(4) 3

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3. The centre of the circle of curvature for the curve $y=e^x$ at $(0,1)$ is:

(1) $(2,3)$

(2) $(-2,3)$

(3) $(2,-3)$

(4) $(-2,-3)$

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4. If $A=\begin{pmatrix} 2 & x+9 \\ 1 & 2x \end{pmatrix}$ is invertible, then $x\neq$:

(1) 4

(2) 1

(3) 3

(4) 5

5. The equation of the circle with extremities $(1, 3)$ and $(5, 7)$ of the diameter is:

(1) $x^2 + y^2 + 6x + 10y + 26 = 0$

(2) $x^2 + y^2 - 6x - 10y + 26 = 0$

(3) $x^2 + y^2 - 6x + 10y + 26 = 0$

(4) $x^2 + y^2 - 6x - 10y - 26 = 0$

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6. The integral value of $\int \frac{\cos 2x}{\sin^2 x \cos^2 x}\, dx =$:

(1) $\csc^2 x - \sec^2 x + c$

(2) $\cot x + \tan x + c$

(3) $-\cot x - \tan x + c$

(4) $\csc x - \sec x + c$
