S.No.	**Part – B (Each question carries 8 marks)**
1	When a die is thrown, X denotes the number that turns up. Find $E(X)$, $E(X^2)$, Var(X), and Standard Deviation (SD).
2	The Probability Distribution Function of a RV X is given below: | x	0	1	2	3	4
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p_x	1/16	4/16	6/16	4/16	1/16	 Find the MGF of X and **hence** find (i) the mean of X (ii) the variance of X (iii) μ_3'
3	The rth moment of a Random Variable (RV) X is given as $\mu_r' = (r+1)!\,2^r$. Find (i) the mean (ii) the variance and (iii) the MGF of the RV X
4	Find the Moment Generating Function of the continuous RV X whose density function is $f(x) = \begin{cases} 2e^{-2x}, x \geq 0 \\ 0, otherwise \end{cases}$ Hence find the first four central moments.
5	The first three moments of a distribution about $X = 4$ are 1, 4, 10 respectively. Find the first three moments about the origin and also find the Standard Deviation (SD).
6	The Random Variable X has the following probability distribution: | x	0	1	2	3	4
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$p(x)$	K	$3K$	$5K$	$7K$	$9K$	 Find (i) K, (ii) mean of X (iii) variance of X (iv) $E(3X - 4)$ and (v) Var$(3X - 4)$
	Part – C (Each question carries 15 marks)
7	The Probability Distribution Function of a discrete RV X is given by 	x	0	1	2	3
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$p(x)$	k	$3k$	$5k$	$7k$	 Find (i) k, (ii) CDF (iii) $E(X)$ (iv) $V(X)$ (v) $E(4X + 5)$ (vi) $V(4X + 3)$ and (vii) MGF of X
8	A continuous RV X has pdf $f(x) = \begin{cases} k(1-x), 0 < x < 1 \\ 0, otherwise \end{cases}$ Find (i) k (ii) the rth moment about the origin. **Hence** find the first four central moments.