

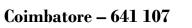


IAE I ANSWER KEY

PART-A.
1.
$$f(x) = k(1+x)$$

 $k = 2$, $k = \frac{2}{51}$.
2. $P[x=x] = \frac{e^{-\lambda}}{\lambda^{n}};$
Mean = $E[x] = \lambda$
Variance : $E[x^{2}] - E[x]^{2} = \lambda$.
3. If the random variable x follows
exponential distribution, then
 $P[x > s+t/x>t] = P[x > s]$ for all
 $s, t > 0$.
4. $f(x,y) = k e^{-(2x+3y)}$
 $k = 6$.
5. $f(x,y) = 8xy$, $0 \le x \le y \le 1$.
 $f(x) = \int_{-\infty}^{\infty} f(x,y) dy = 4x^{3}$.







$$pART - B.$$
6.a) (i) $K = 0.067$
ii) $p(x \le 2) = p(x = -2) + p(x = -1) + p(x = 0) + p(x = 0) + p(x = 0) + p(x \ge 0) + p(x$





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1.
(i)
$$\lambda = 1.8$$
; $P[x = x] = \frac{e^{\lambda} x^{n}}{x!}$
(i) without breakdown;
 $P[x=0] = 0.1653$
ii) with only one breakdown:
 $P[x=1] = 0.2915$
iii) with atleast one breakdown;
 $P[x \ge 1] = 1 - p[XL1]$
 $= 0.8347$.
 $\therefore P[x \ge 1] = 0.1653$.

$$\vec{a}, \vec{n}, f(x) = \lambda e^{-\lambda x}, x \ge 0$$

$$m_{GF}; M_{x}(t) = \lambda$$

$$\vec{\lambda} - t$$

$$Mean = \frac{1}{\lambda}$$

$$Variance; E[x^{2}] - E[x] \stackrel{2}{=} 2 - 1$$

$$\sqrt{ar}(x) = \frac{1}{\lambda^{2}}$$



4



1.1



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