

H.A-2

Ans] True

Ans2] Given

$$p = 0.7$$

$$\text{find } (K) = 4$$

$$P(X=K) = \binom{n}{K} p^K q^{(n-K)}$$

$$P(K=4) = \binom{6}{4} (0.7)^4 (0.3)^2$$

$$\textcircled{4} \therefore P(K=4) = \frac{32 \cdot 4 \cdot 1}{2 \cdot 2 \cdot 2} \checkmark$$

Ans3] $p = \frac{1}{6}$

$$q = 1 - \frac{1}{6} = \frac{5}{6}$$

$$n = 8$$

$$K = 2$$

$$P(X=2) = \binom{8}{2} \left(\frac{1}{6}\right)^2 \left(\frac{5}{6}\right)^6$$

$$= \frac{8!}{2!(8-2)!} \times \left(\frac{1}{36}\right) \times \left(\frac{15625}{46656}\right)$$

$$= 28 \times \frac{15625}{1679616}$$

4. $p(n=2) = 0.2601$
 $\therefore \boxed{p(n=2) = 26\%}$ ✓

Ans 4] $\lambda = 5$
 $k = 3$

$$p(n=k) = \frac{\lambda^k e^{-\lambda}}{k!}$$

$$p(n=3) = \frac{5^3 e^{-5}}{3!}$$

$$= 0.1403$$

④ $\therefore \boxed{p(n=3) = 14.03\%}$ ✓

Ans 5 $\lambda = 4$
 $k = 6$

$$p(k=6) = \frac{\lambda^k e^{-\lambda}}{k!}$$

$$= \frac{4^6 e^{-4}}{6!}$$

$$= 0.1041$$

④ $\therefore \boxed{p(n=6) = 10.41\%}$ ✓

$$\lambda = 10$$

$$k = 12$$

$$p(x=k) = \frac{\lambda^k e^{-\lambda}}{k!}$$

$$p(k=12) = \frac{10^{(12)} e^{-(10)}}{12!}$$

$$\therefore p(k=12) = 0.0947$$

$$\text{Ans 7. } \mu = 1000$$

$$S.D(\sigma) = 100$$

$$n = 1200$$

$$Z \text{ Score} = \frac{n - \mu}{\sigma} = \frac{1200 - 1000}{100} = \underline{\underline{2.0}}$$

$$z \text{ table,} \\ \Rightarrow 0.97725$$

$$\therefore \text{row} = 2.00$$

$$\text{column} = 0.00$$

Greater than 1200,

$$1 - 0.97725 = \underline{\underline{0.02275}}$$

$$\text{Ans 8. } \mu = 150$$

$$\sigma = 20$$

$$n = 130, 170$$

$$Z \text{ Score} = \frac{n - \mu}{\sigma}$$

$$\Rightarrow \frac{130 - 150}{20} = -1.0$$

$$, \frac{170 - 150}{20} = 1.0$$

z table,

$$-1.0 \quad 4 \quad 0.0 = 0.15866$$

$$\textcircled{A} \quad 1.0 \quad 4 \quad 0.0 = 0.84134$$

z table,

$$\Rightarrow 0.84134 - 0.15866 = \underline{0.68268} \checkmark$$

\therefore 68.268% chances of weight between 130g and 150g.

Ans 9] $\mu = 98.6$

$$\sigma = 0.6$$

$$n = 98$$

$$z \text{ score} = \frac{n - \mu}{\sigma}$$

$$\Rightarrow \frac{98 - 98.6}{0.6} = -1$$

$$[-1.0 \quad 4 \quad 0.0]$$

\textcircled{A}

z table,

$$\Rightarrow \underline{0.15866} \checkmark$$