



Name _____ R. No. _____ Class / Div. _____ Date _____

Subject Probability and Statistics Topic Unit 1 and 2 Page No. _____

Assignment 1

Q1) i) 4, 7, 9, 9, 11, 15, 18, 18, 18, 25

$$\text{Mean} = \frac{4 + 7 + 9 + 9 + 11 + 15 + 18 + 18 + 18 + 25}{10}$$

$$= \frac{134}{10}$$

$$= 13.4$$

$$\text{Median} = \frac{11 + 15}{2}$$

$$= 13$$

$$\text{Mode} = 18$$

ii)

Number of households	Number of People	Σ ECF	Σ x.f
0	5	055	0
1	11	16 ¹¹ 6	11
2	26	42 ⁵²	52
3	15	57	45
4	3	60	12
	60		120

$$\text{Mean } (\bar{x}) = \frac{120}{60}$$

$$\bar{x} = 2$$

$$\text{Median} = \frac{60}{2}$$

$$= 30$$

$$\text{Median} = 2$$

$$\text{Mode} = 2$$

$$Q_1 = \frac{N}{4} = \frac{60}{4} = 15 = 1$$

$$Q_3 = \frac{3N}{4} = \frac{3 \times 60}{4} = 45 = 3$$

$$\text{Interquartile Range} = 3 - 1 = 2$$



$$2) i) P(X=0) = \frac{(0.5)^0 e^{-0.5}}{0!}$$
$$= 0.60653$$

$$ii) 1 - \frac{(0.5)^0 e^{-0.5}}{0!} \times \frac{(0.5)^0 e^{-0.5}}{0!} \times \frac{(0.5)^0 e^{-0.5}}{0!}$$
$$= 0.1447$$

$$3) i) 14) f(x) \in \Gamma(\alpha) = (5-1)! = 4!$$
$$f(x) = \frac{(0.4)^5 \cdot e^{-0.4 \times 22.87}}{(22.87)^{5-1} \cdot 4!}$$
$$= 0.01237$$

~~x~~

$$3) ii) 4) P(2 \text{ mated female}) = \frac{7}{18} \times \frac{6}{49.17}$$
$$= 0.1373 \text{ x}$$
$$= 7/51$$

$$5) P(L_2/L) = \frac{(0.5) \cdot (0.4)}{(0.5 \cdot 0.4) + (0.4 \cdot 0.2) + (0.1 \cdot 0.1)}$$
$$= 0.68966$$

$$7) i) F(3) = 0.35$$

$$ii) E(X) = 1 \times 0.05 + 2 \times 0.15 + 3 \times 0.35 + 4 \times 0.4 + 5 \times 0.05$$
$$= 3.25$$

$$iii) V(X) = E(X^2) - [E(X)]^2$$
$$= 11.45 - 10.56$$
$$= 0.8875$$

$$iv) \text{Coefficient of Skewness} =$$

$$8) \quad P(X < 3) = \frac{3}{15} = \frac{1}{5}$$

$$9) \quad 0.01 \times 0.01 \times 0.01 \times \cancel{0.99 \times 0.99 \times 0.99 \times 0.99} \\ = 0.000001$$

$$10) \quad P(\text{next three children are boys}) = \frac{1}{2} \times \frac{1}{2} \times \frac{1}{2} \\ = 0.125 \\ = \frac{1}{8}$$

$$12) \quad P(\text{time between two claims}) = \frac{e^{-10} 10^{0.1}}{0.1!}$$