



AG-506

Seat No. _____

B. Sc. (Sem. IV) Examination

March / April - 2019

Mathematics : ES-MAT-22

(Business Mathematics - II)

Time : Hours]

[Total Marks : 50

Instructions : (1) All questions are compulsory.
(2) Figures to the right indicates the marks of the corresponding question.

1 Attempt any **four** : **20**

- (1) A box contains 20 electric bulbs. The proportion of defective item in the box is 10%. If two bulbs are selected from the box at random. Find the probability that both the bulbs are non-defective.
- (2) There are 3 white and 4 black, 2 white and 2 black, 1 white and 3 black ball in three boxes respectively. If one box is selected and one ball is select from it at random which is white then find the probability that the ball selected is form 1st box and 3rd box.
- (3) Define the following term.
 - (i) Complementary event
 - (ii) Equally likely events
 - (iii) Independent events
 - (iv) Exhaustive events

- (4) The probability that an events A is not occur is 0.3, the probability that an event B is occure is 0.5 and the probability that at least one A and B is occur is 0.8. then find the probability that both A and B is occur together.
- (5) In factory three machines produce 200, 300, 500 units of an item per day. The proportion of defective item 2%, 4%, 3% respectively. Of on item selected is random, it seems to be defective. Find the probability that the item produced by second machines.

2 Attempt any **four** :

20

- (1) Five coins are tossed 3200 time than find the frequencies of the distribution of heads, tails and tabulate the results.
- (2) The mean and standard deviation of a normal distribution are 60 and 5 respectively. Find the inter - quartile range and the mean deviation of the distribution.
- (3) The mean of a Poisson distribution is 4 then find
- (i) S.D. (ii) β_1
- (iii) β_2 (iv) μ_3
- (4) Fit a poisson distribution to the following data and calculate the theoretical frequencies.
- (5) The probability that an evening college student will graduate is 0.4. Determine the probability that one of 5 student (i) none (ii) one (iii) at least one will graduate.

3 Answer the following questions :

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- (1) If B and C are exhaustive and mutually exhaustive events and $3P(B) = 4P(C)$. Then find $P(B)$ and $P(C)$.
 - (2) State baye's theorem.
 - (3) Find probability that there are 53 Sundays in a leap year.
 - (4) A binomial distribution, it mean is 15 and variation is 6 then find value of n and p.
 - (5) Two cards are selected at random from a pack of 52 cards. Find the probability that both cards are ace.
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