DF-010-001307 Seat No. _____

B. B. A. (Sem. III) (WEF-2011) Examination

March - 2022

Business Statistics : 307

(Without General Options)

Faculty Code : 010

Subject Code : 001307

Time : $2\frac{1}{2}$ Hours] [Total Marks : **70**

1 (a) Explain the following terms : **7**

(I) Independent events

(II) Mutually exclusive events

(III) Exhaustive events

(b) 2 cards are selected from a pack of 52 cards, find the probability of getting : **7**

(a) One king and one queen

(b) Both heart cards

(c) Both from the same suit

OR

1 (a) Explain law of addition in case of two events. **7**

(b) In a particular village 65% can read Gujarati language, 36% can read Hindi language and 30% can read English. 18% of population can read Gujarati and Hindi, 17% can read Gujarati and English and 13% can read Hindi and English. There are 5% of populations who can read all the languages. Find the probability that a randomly selected person can read at least 1 language. **7**

2 (a) Explain the properties of normal distribution. **7**

(b) The mean and standard deviation of 500 students are 52 and 8 if the marks are normally distribution then find : **7**

(a) Total number of students getting less than 36 marks.

(b) Total number of students getting more than 60 marks.

(c) Total number of students getting between 48 and 56 marks.

OR

2 (a) Explain the properties of mathematical expectation. **7**

(b) The probability distribution of random variable x is given below. Find the value of k and also obtain the new probability distribution function. **7**

X	0	1	2	3	4	5	6	7
P(x)	0	K	2k	2k	3k	k^2	$2k^2$	$7k^2+k$

3 (a) Explain the properties of binomial distribution. **7**

(b) The probability that a bomb dropped from a plane will hit the target is 2/5. Two bombs are enough to destroy the target. If 4 bombs are dropped on a target, find the probability that, **7**

(a) The target is destroyed

(b) The target is saved

(c) The target is partially destroyed

OR

3 (a) Discuss the concept of Poisson distribution. **7**

(b) Fit a Poisson distribution and test the goodness of fit. **7**

Xi 0 1 2 3

Fi 211 90 19 3 ($e^{-0.42} = 0.657$)

4 What is sample? Explain the features of good sample and discuss the advantages of sampling. **14**

OR

4 Explain simple random sampling with advantages and disadvantages. **14**

5 (a) Explain expected monetary value principle. **7**

(b) Find the best act by using maxi-max, maxi-min, hurwich (alpha = 0.70), Laplace and mini-max regret principles from the following matrix : **7**

Acts/Events	El	E2	E3	E4
A1	6	0	-10	6
A2	-4	12	18	-2
A3	14	6	0	8

OR

5 (a) Explain expected opportunity loss principle. **7**

(b) Find best act using EMV and EOL principles **7**

Events/Acts	A1	A2	A3	Probabilities
E1	-20	-50	200	0.30
E2	200	-100	-50	0.40
E3	400	600	30	0.30