Q.P. Code: 12263

Second Semester B.C.A. Degree Examination
October / November 2019
(2016 - 17 Batch)
(BCB 430) STATISTICS AND PROBABILITY

Time : 3 Hours Max. Marks : 80

I. Answer the following : (1x5=5)

1. Define Statistics.
2. What is meant by mode?
3. When do you say that correlation between two groups is positive.
4. Give the classical definition of probability.
5. What is a random variable?

II. Answer any FIVE of the following : (15x5=75)

6. a) Briefly explain any five characteristics of Statistics.

   b) Describe the stages of Statistical method.

   c) Define the following:

   (i) Frequency density (ii) Manifold

   (iii) Class mark (iv) Qualitative data (v) Open-ended class **(5+5+5)**

7. a) Calculate arithmetic, geometric and harmonic mean of the following FDT.

X	19	21	23	25	27	29	31
f	13	15	16	18	16	15	13

05

   b) Calculate the mean deviation of following FDT.

Differences (Years)	0-2	2-4	4-6	6-8	8-10	10-12
f	220	345	452	280	63	10

Also calculate the co-efficient of the mean deviation. **05**

   c) Calculate standard deviation and its co-efficient using step deviation method with step = 5.

Height (cm)	155-160	160-165	165-170	170-175	175-180	180-185	185-190
f	01	6	6	6	6	3	2

05

8. a) (i) What is Correlation ? Mention its types.

(ii) Draw scatter diagram and mention the type of correlation.

X	3	6	7	9	10	13	15
Y	20	18	14	11	9	10	6

(3+2)

b) Calculate Karl Pearson's coefficient of correlation for the following data.

Stat Marks	7	4	6	9	3	8
Maths Marks	4	5	4	8	3	6

(05)

c) The following table gives the frequency according to the age groups and marks obtained by 67 students in an intelligence test. Calculate Karl Pearson's coefficient of correlation between age and intelligence.

Test Marks	Age in Years			
	18	19	20	21
200-250	4	4	2	1
250-300	3	5	4	2
300-350	2	6	8	5
350-400	1	4	6	10

(05)

9. a) Calculate the Spearman's rank correlation coefficient for the following data.

X	35	37	38	42	44	46	51	54	55	56
Y	40	32	42	42	41	31	50	52	46	55

(04)

b) List the properties of regression lines. **(04)**

c) Write any two difference between regression and correlation analysis. **(02)**

d) Compute the regression equation Y on X from the following data.

2	4	5	6	8	11	X
18	12	10	8	7	5	Y

(05)

10. a) Define the following:

(i) Event (ii) Exhaustive event (iii) Compliment of event

(iv) Mutually exclusive events **(04)**

b) State and prove addition theorem of probability for two non-mutually exclusive events. (total probability). **(04)**

c) A card is drawn from a pack of 52 playing cards. What is the probability that it is a (i) Red or club ? (ii) King or Queen

(04)

d) A die is thrown once. What is the probability of getting an odd number? **(03)**

11. a) State and prove multiplication theorem of probability for two independent events.

(06)

b) If S = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10} and A = {3, 6, 9} then find $P(A^1)$. **(02)**

c) A coach wants to select a player for a cricket match with the following qualities.

(i) A good batsman : probability of getting this is 3/10

(ii) A good bowler : probability of getting this is 2/10

(iii) A good fielder : probability of getting this is 5/10

Find the probability of getting such a player, when these three attributes are independent. **(03)**

d) State Bayer's Theorem. **(03)**

e) A husband and his wife attended an interview. The probability of selecting husband is 2/5 and that of wife is 1/2. Find the probability of selecting any one of them. **(06)**

12. a) Mention the types of random variables and give examples to each. **(04)**

b) What is meant by probability distribution? Give example. **(02)**

c) Define variance of the probability distribution of random variable X and write the equation for v(x) in terms of E(x) **(04)**

d) What is meant by Bernoulli distribution? List its features. **(05)**

* * *