37324/C 240

Reg. No. | | | | | | | | |

III Semester B.B.A. 3 Degree Examination, November/December 2016
QUANTITATIVE TECHNIQUES
(New Syllabus)

Time : 3 Hours Max. Marks : 80

Instructions : *1) Write question* ***numbers correctly****.*
2) Simple calculators are ***allowed****.*

SECTION – A

Answer **any ten** of the following : **(10×2=20)**

1. Define probability.
2. Define poisson distribution.
3. Define correlation and regression.
4. Define Mutually exclusive events.
5. Define random Variable.
6. If $P(A)=\frac{2}{5}, P(B)=\frac{1}{4}$ and $P(A \cap B)=\frac{3}{8}$, find $P(A \cup B)$.
7. Define sample space with example.
8. If bxy = 0.2 and byx = 0.45, find r.
9. If E(x) = 4 and $E(x^2)$ = 25, find variance of x.
10. Write any two examples of poisson distribution.
11. Write any two applications of chi-square test.
12. Define Type I and II error.

SECTION – B

Answer **any four** of the following : **(4×5=20)**

13. What are the properties of normal distribution.

P.T.O.

14. Compute Spearman's rank correlation between X and Y for the following data :

X	36	43	47	28	35	50	40
Y	73	44	35	30	20	36	40

15. The probability of a person surviving after an accident is $\frac{2}{5}$. Find the probability of survival of 5 persons when 8 persons met with an accident.

16. The probability that student X solves the problem is $\frac{1}{2}$ and student Y solves the problem is $\frac{1}{4}$. If the problem is independently solved by them, find the probability that atleast one of them can solve the problem.

17. Find Var(x) and S.D.(x) for the following probability distribution :

X	−1	0	1	2
P(x)	$\frac{1}{5}$	$\frac{1}{10}$	$\frac{3}{10}$	$\frac{2}{5}$

18. Company X markets milk in a packet form in 500 ml by a machine for which the S.D. is 5 ml. There are 72 packets and the mean of filling the milk is found to be 501.1 ml. Verify whether the machine is functioning properly. Apply 5% level of significance.

SECTION – C

Answer **any three** of the following : **(3×10=30)**

19. Calculate Karl-Pearson's co-efficient of correlation from the following data :

X	17	26	19	23	26	18	20	16	28	27
Y	25	30	24	32	33	26	28	21	34	37

20. The following results were obtained from marks in Economics and Statistics :

	Marks in Economics (X)	Marks in Statistics (Y)
Mean	50	100
S.D.	5	10

Co-efficient of correlation = 0.5.
Obtain both the regression lines and estimate Y when X = 90.

21. A survey of 80 men and 80 women who were aged 50 or more was conducted. Among the 80 men, 8 had high B.P. Among the 80 women 6 had high B.P. Test whether the proportion of men with high B.P. differs from the proportion of women with high B.P.

22. The daily wages of 1000 workers are normally distributed with mean 70 and S.D. 5. Estimate the number of workers whose daily wages will be :
    1) Less than 72
    2) More than 72
    3) Between 69 and 72.

23. From the following data regarding eye colour of fathers and their sons, test whether fathers eye colour and sons eye colour are independent :

		Sons eye colour		
		Light	**Dark**	
Fathers eye colour	**Light**	230	148	**378**
	Dark	151	471	**622**
		381	**619**	**1000**

SECTION – D
(Compulsory) **(1×10=10)**

24. From the following data, fit a poisson distribution table and obtain theoretical frequencies :

x	f
0	22
1	13
2	5
3	5
4	3
5 or more	2