M 10270

Reg. No. : .....

Name : .....

II Semester B.A./B.Sc./B.Com./B.B.A./B.B.A.T.T.M./B.B.M./B.C.A./B.S.W. (CCSS – Reg./Supple./Improv.) Degree Examination, March 2011

B.Com. (Complementary Course)

2C02 COM : QUANTITATIVE TECHNIQUES FOR BUSINESS DECISIONS

Time: 3 Hours | Max. Wt. 30

WGP : 120

Instruction : Use of simple calculators and statistical table ***permitted.***

PART – A

I. This part consists of **two** bunches of questions, carrying weightage of **one**. **Each** bunch consists of 4 objective type questions. Answer **all** the questions.

1) The constraints in LPP will have always

a) sign $\geq$ b) sign $\leq$

c) Any of the above only d) = or $\geq$ or $\leq$ sign

2) $P(A/B)$ is equal to

a) $\frac{P(A \cap B)}{P(A)}$ b) $\frac{P(A \cap B)}{P(B)}$ c) $\frac{P(A \cup B)}{P(B)}$ d) $\frac{P(A \cup B)}{P(A)}$

3) Under simple method, to convert $\leq$ sign of constraints into equality, we have to

a) Add slack variable b) Deduct slack variable

c) Add surplus variable d) Deduct surplus variable

4) Chisquare distribution is a

a) Discrete frequency distribution b) Symmetrical distribution

c) Skewed distribution d) None of the above **(W = 1)**

(WGP = 4)

P.T.O.

II. 5) A study related to the degree of association revealed that correlation coefficient was equal to – 1. It means between the variables, there is

a) Very high positive correlation
b) Very high negative correlation
c) Perfect positive correlation
d) Perfect negative correlation

6) The area under the normal curve corresponding to z = 1.88 is equal to

a) 0.4693 b) 0.4699
c) 0.4706 d) None of the above

7) The coefficient of correlation (r) and X and Y is 0.52, $\sigma_x = 4.6$, $\sigma_y = 36.8$. by x will be

a) 3.17 b) 4.31 c) 2.13 d) 4.16

8) For a Poisson distribution, m = 0.1, P(0) = 0.9048. Then the value of P(1) will be

a) 0.07048 b) 0.08048
c) 0.06048 d) 0.09048 **(W = 1)**

(WGP = 4)

PART – B

Answer **any eight** questions in **one** or **two** sentences **each**. **Each** question carries weightage of **one**.

9. What is surplus variable ?

10. State any two uses of t distribution.

11. What are basic variables in simplex table ?

12. What are seasonal variations in time series ?

13. What is the relationship between correlation coefficient, 'r' and regression co-efficients bxy and byx ?

14. List two features of binomial distribution.

15. What is linear programming ?

16. When are two or more events called 'dependent' ?

17. Give the names of any two components of a time series.

18. Define OR (Operations Research). **(W = 8×1=8)**

(WGP = 8×4×1=32)

PART – C

Answer **any six** questions. Answer not to exceed **one** page **each**. **Each** question carries a weightage of **2**.

19. What is Chisquare distribution ?

20. Explain Graphical method of solving LPP.

21. State the addition rule for
    a) Mutually exclusive events
    b) Non mutually exclusive events.

22. A can hit a target four times in 5 shots. B, three times in 4 shots, C two times in 3 shots. Calculate the probability that
    a) All A, B and C will hit the target
    b) Only one will hit the target .

23. The data given below pertain to the price and demand for a commodity over a period of 5 years.

Price (Rs.) :	7	8	9	6	5
Demand (tons) :	8	6	7	9	10

Calculate Pearson's correlation coefficient between price and demand.

24. The height of school children of one institution is normally distributed with mean = 54 inches and std. deviation 12 inches. What percentage of students have height between 46 and 56 inches ?

25. Calculate regression equation of X on Y from the following data, taking deviations from actual means :

X :	1	2	3	4	5	6	7	8	9
Y :	9	8	10	12	11	13	14	16	15

26. If 3% of electric bulbs manufactured by a Co. are defective, find the probability that in a sample of 100 bulbs, exactly 5 are defective. **(W=6×2=12)**

(WGP=6×4×2=48)

PART – D

Answer **any two**. **Each** question carries a weightage of **4**.

27. What are the uses of correlation ?

28. Solve the following LPP by simplex method :

Maximize $Z = 7x_1 + 5x_2$

Subject to : $x_1 + 2x_2 \leq 6$ ..... (1)

$4x_1 + 3x_2 \leq 12$ ..... (2)

Non negative : $x_1, x_2 \geq 0$.

29. Two unbiased dice are thrown. Calculate the probability that

a) Both show same number

b) Total number on both together is 8

c) One die shows '5'

d) The first die show '5'

e) Total on both the dice together in less then 5. **(W=2×4=8)**

(WGP=2×4×4=32)
