M 3777

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.
Degree (CCSS – Reg./Supple./Improv.) Examination, May 2013
COMPLEMENTARY COURSE IN COMMERCE
2C02 COM : Quantitative Techniques for Business Decisions
(2011 and Earlier Admn.)

Time : 3 Hours

Max. Weightage : 30

PART – A

This Part consist of **two** bunches of questions carrying **equal** weightage of **one**.
Each bunch consist of **four** objective type questions. Answer **all** questions.

I. 1) Scatter diagram of two variables X and Y given the idea about

   a) Correlation

   b) Regression

   c) Functional relationship

   d) All the above

2. The limits of Karl Pearson's correlation co-efficient are

   a) ± 1 b) ± 2

   c) ± 3 d) None of these

3. Simulation model is used for

   a) To evaluate the merit of alternative courses of action

   b) To determine the sequence

   c) To decide optimal time to replace

   d) None of these

4. In time series 'Depression' is related with

   a) Trend

   b) Seasonal variation

   c) Cyclical fluctuation

   d) Irregular fluctuations

(W=1)

P.T.O.

II. 5. If A and B are two independent events than $P(A \cap B)$ is

a) $P(A).P(B)$

b) $\dfrac{P(A)}{P(B)}$

c) $P(A) + P(B)$

d) Zero

6. If the two regression co-efficients are -0.8 and -0.2, then the value of correlation coefficient r is

a) -0.4

b) 0.16

c) $+0.4$

d) -0.16

7. The correlation between price and demand of a commodity is

a) Positive

b) Negative

c) Zero

d) None of these

8. A card is drawn from a well shuffled pack of cards. The probability that it is a card of spade is

a) $\frac{1}{4}$

b) $\frac{1}{13}$

c) $\frac{13}{51}$

d) $\frac{11}{49}$

(W=1)

PART – B

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

9. What is operations research ?

10. What is the importance of time series analysis ?

11. What do you mean by the standard normal curve ?

12. What is conditional probability ?

13. What is linear programming ?

14. Define time series.

15. Mention the area of application of operation research in finance and accounting.

16. What is scatter diagram ?

17. What do you mean by 'mutually exclusive' event ?

18. What do you mean by 'the objective function' ?   (W=8×1=8)

PART – C

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

19. What are the assumptions of linear programming ?

20. Discuss the different components of time series.

21. What are the different methods ascertaining correlation ?

22. Explain the steps to be followed for the formulation of L. P. Model.

23. From 30 tickets marked with the first 30 numerals one is drawn at random. Find the probability that the number on this ticket is a multiple of 3 or 11.

24. Calculate the five yearly moving average for the following time series :

Year :	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Price :	55	52	49	53	54	60	57	55	57	61	65	64	61	59	65

25. Calculate rank correlation co-efficient from the following data :

Rank X :	5	3	4	8	2	1	7	10	6	9
Rank Y :	3	7	5	9	2	4	1	10	8	6

26. A company has two grades of inspectors 1 and 2, who are to be assigned for a quality control inspection. It is required at least 2000 pieces be inspected per 8 hour day. A grade I inspector can check pieces at the rate of 40 per hour, with an accuracy of 97%. A grade 2 inspector checks at the rate of 30 pieces per hour with an accuracy of 95%. The wage rate of 9 grade I inspector is Rs. 5 per hour while that of a Grade 2 inspector is Rs. 4 per hour. An error made by an inspector costs Rs. 3 to the company. There are only nine grade 1 inspector and eleven grade 2 inspectors available in the company. The company wishes to assign work to the available inspectors so as to minimize the total cost of the inspection. Formulate this problem as a linear programming model.   (W=6×2=12)

PART – D

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

27. What is correlation ? Explain the utility of correlation analysis.

28. Calculate the two Regression co-efficients with the help of the following data. Also from regression equations calculate the expected average height of the son when the height of the father is 67.5 inch. Calculate the expected average height of the father when the height of son is 73.5 inch :

Height of father (in inch) :	65	66	67	67	68	69	71	73
Height of son (in inch) :	67	68	64	68	72	70	69	70

29. If 5% of the electric bulbs manufactured by a company are defective, use Poisson distribution to find the probability that in a sample of 100 bulbs. (i) none is defective (ii) 5 bulbs will be defective (Given : $e^{-5} = 0.007$) (W=2×4=8)

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