M 928

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./ Degree (CCSS – Reg./Supple./Improv.) Examination, April 2012

COMPLEMENTARY COURSE IN COMMERCE

2C02 COM : Quantitative Techniques for Business Decisions

Time: 3 Hours Max. Weightage : 30

***Instruction : Use** of simple calculator and statistical table is **permitted**.*

PART – A

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

I. 1) Total number of arrangements possible of 'n' different objects taking 'r' at a time giving importance to the order is

a) ${}^{n}p_{r}$ b) ${}^{n}c_{r}$ c) ${}^{n}c_{n}$ d) ${}^{n}p_{n}$

2) A and B are two events. If $A \cap B$ is a null set, it means A and B are

a) Not mutually exclusive

b) Mutually exclusive

c) None of the above

3) Simplex method can be used to solve LPP, only if there are

a) two variables

b) Two or more

c) None of the above

4) Chi square distribution is

a) discrete frequency distribution

b) normal distribution

c) Continuous distribution **(Weight = 1)**

P.T.O.

II. 5) The value of e^{-3} is equal to

a) 0.74042 b) 0.27253

c) 0.04979 d) 0.00409

6) For a binomial distribution, n = 10 $p = \frac{1}{2}$, $q = \frac{1}{2}$. The standard deviation is

a) $\sqrt{40}$ b) $\sqrt{20}$ c) $\sqrt{5}$ d) $\sqrt{2.5}$

7) Regression coefficient by x = 0.8 and bxy = 0.45 . Then, correlation coefficient r is equal to

a) $\sqrt{0.53}$ b) $\sqrt{0.39}$ c) $\sqrt{0.25}$ d) $\sqrt{0.36}$

8) If $P(A \cup B) = 0.9$, $P(\overline{A} \cap \overline{B})$ will be equal to

a) 0.1 b) 0.3 c) 0.2 d) 0.4 **(Weight = 1)**

PART – B

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

9) What is regression equation of X on Y ?

10) Give the axioms in probability theory.

11) What is the area property of normal curve ?

12) What is another word for Z value ?

13) Give the formula for computing mean of a binomial distribution.

14) What are non-negative constraints in LPP ?

15) State two methods of analysing correlation.

16) Give two popular methods of fitting trend in time series.

17) What is a vector in simplex method ?

18) State two assumptions of 't' distribution. **(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) State any four limitations of L.P.P.

20) List any four phases of operations Research.

21) Give any four properties of Poisson distribution.

22) Distinguish between correlation and Regression.

23) In a competitive exam, out of 600 candidates who appeared, 30 are to be selected 100 candidates will be called for interview. What is the probability that a person will be called for an interview ? Determine the probability that a person will get selected, if he is called for an interview.

24) There is 5% chance for an item produced by a machine to be defective. Calculate the probability that out of ten items selected at random,

a) exactly one will be defective

b) two will be defective

c) less than 2 defectives are found

use binomial probability rule.

25) The regression equation of y on x is $2x + 4y - 5 = 0$. Calculate the value of by x.

Also calculate bxy if regression equation of x on y is $3x + 2y + 4 = 0$.

26) A project yields an average cash flow of Rs. 500 lakhs with standard deviation Rs. 60 lakhs. Calculate the probability that

a) Cash flow will be more than 680 lakhs

b) Cash flow will be between 460 and 540 lakhs. **(W=6×2=12)**

PART – D

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

27) Explain the apriori and relative frequency approaches to probability.

28) The probability that a doctor will diagnose a particular disease correctly is 0.6. The probability that the patient will die by his treatment, after correct diagnosis is 0.4. The probability of death after wrong diagnosis is 0.7. A patient who had the disease died. What is the probability that the disease was not correctly diagnosed ?

29) Solve graphically. Objective function :

Minimize $Z = 1000\, x_1 + 800\, x_2$

Subjected to constraints

$6x_1 + 2x_2 \geq 12$ ..... (1)

$2x_1 + 2x_2 \geq 8$ ..... (2)

$4x_1 + 12x_2 \geq 24$ ..... (3)

$x_1,\ x_2 \geq 0$

(Weight = 2×4=8)