(i) **Printed Pages : 11** **Roll No. .....**

(ii) **Questions : 9** **Sub. Code : 1 9 7 8**

Exam. Code : 0 3 0 8

Master of Arts (Economics) 2nd Semester

1046

QUANTITATIVE METHODS–II (In all Mediums)

Paper–MAECO-203

Time Allowed : Three Hours] **[Maximum Marks : 80**

Note :– Attempt **five** questions in all including Question No. **1**, which is compulsory. Attempt **one** question each from Units I to IV.

1. Attempt any **ten** parts :

(i) Evaluate $\int 3e^{3x} + 2^x \, dx$

(ii) Evaluate $\int_0^1 \frac{1-x}{1+x} \, dx$

(iii) Define differential equations.

(iv) Explain homogeneous equations.

(v) Explain difference equations.

(vi) What are the characteristics of linear programming ?

(vii) Explain the Simplex method.

(viii) A die is thrown ten times. If getting an even number is success, what is the probability of at least 6 successes ?

(ix) What are the characteristics of Poisson distribution ?

(x) Highlight the importance of normal distribution.

(xi) Discuss the properties of an ideal estimator.

(xii) What are the errors in testing of hypothesis ?

(xiii) Explain tests of significance for large samples.

(xiv) Define chi square test.

(xv) What are the uses of chi square test ? 10×2

UNIT–I

2. (i) Evaluate $\int x^3 e^{2x}\, dx$,

(ii) Evaluate $\int \frac{2}{x(x^2-4)} dx$. 5+5

(iii) If the market demand curve is $p = 20 - 2x$, where p is price and x is quantity demanded, find consumer surplus when $p = 4$ and $p = 8$. 5

3. (i) Solve the equation, $(2x + 3y - 6)dy = (6x - 2y - 7)\, dx$. 7

(ii) If the average revenue is equal to marginal revenue for all levels of output, show that the average revenue remains constant. 8

UNIT–II

4. (i) Solve $y_{t+1} + 3y_t = 4(y_{o=4})$

(ii) Distinguish between first and second order Difference equations. 10+5

5. Max $Z = 20x_1 + 6x_2 + 8x_3$, subject to constraints,

$8x_1 + 2x_2 + 3x_3 \leq 200$

$4x_1 + 3x_2 \leq 100$

$2x_2 + x_3 \leq 50 \quad x_1, x_2, x_3 \geq 0$ 15

UNIT–III

6. (i) The following table gives the number of deaths per month in a hilly locality. Fit a Poisson distribution and also calculate expected frequencies.

No. of deaths	0	1	2	3	4
Frequency	122	60	15	2	1

7

(ii) Students of a class were given a mechanical aptitude test. Their marks were found to be normally distributed with mean 60, standard deviation 5. What percentage of students scored more than 60 marks, less than 56 marks and between 45 to 65 marks ? 8

7. In a random sample of 1000 persons from town A, 400 are found to be consumers of wheat. In a sample of 800 from town B, 400 are found to be consumers of wheat. Do these data reveal a significant difference between town A and town B, so far as the proportion of wheat consumers is concerned ? 15

UNIT–IV

8. Two samples of 6 and 5 items respectively gave the following data :

Mean of 1st sample	40
Standard deviation of first sample	8
Mean of 2nd sample	50
Standard deviation of 2nd sample	10

Is the difference of means significant ? 15

9. 200 digits are chosen at random from a set of tables. The frequencies of the digits are as follows :

Digit:	0	1	2	3	4	5	6	7	8	9
Frequency :	18	19	23	21	16	25	22	20	21	15

Use chi square test to assess the correctness of hypothesis that the digits were distributed in equal numbers in the tables from which they were chosen. 15

(हिन्दी माध्यम)

Note :– Attempt **five** questions in all including Question No. **1**, which is compulsory. Attempt **one** question each from Units I to IV.

1. किन्हीं **दस** भागों के उत्तर दो :-

(i) $\int 3e^{3x} + 2^x \, dx$ का मूल्याँकन करो।

(ii) $\int_0^1 \frac{1-x}{1+x} \, dx$ का मूल्याँकन करो।