FACULTY OF MANAGEMENT BBA (CBCS) (Business Analytics) I - Semester Examination, December 2024 Subject: Business Mathematics Paper Code: DSC-102

Time: 3 Hours

Max. Marks: 80

 $(5 \times 4 = 20 \text{ Marks})$

PART – A

(Short Answer Type)

Note: Answer any five questions.

- 1. Classify as even and odd function $f(x) = x^3 x$, $g(x) = x^4 + 1$, $h(x) = x^5 + x^3 + x$.
- 2. Find 10th term of a GP, whose third term is 1 and sixth term is -1/8.
- 3. If A has 32 elements, B has 42 elements and $(A \cup B)$ has 62 elements. Find the number of elements is $(A \cap B)$.
- 4. If $y = 7x^5 9x^4 + 36x^3 12x^2 + 5x + 1/3x$ find dy/dx?
- 5. Evaluate $\int (x-1/x)^2 dx$.

1

9

3 5

- 6. If A = 6 7 8 find its determinant.
 - 4 3
- 7. If nP4=12 nP2, find n=?
- 8. Write transpose of matrix A =

PART – B (Essay Answer Type)

Note: Answer all the questions.

 $(5 \times 12 = 60 \text{ Marks})$

9. (a) Find the compound interest on Rs.69,500 for 3 years. It interest is payable half yearly, the rate for the first two years being 6% per annum and for the third years 9% per annum?

(OR)

- (b) Find the sum of all natural numbers between 200 and 400. Which are drivable by 7?
- 10.(a) In a class of 50 students, 24 students have taken economics, 16 have taken economics but not Politics. Find the number of students who have taken economics and politics and those who have politics but not economics?

(OR)

(b) In how many different ways can 8 examination papers be arranged in a line. So the best and worst papers are never together?

- 11.(a) The production manager of a company plans to include 180 sq.cm of actual printed matter is each page of a book under production? Each page should have 2.5 cm wide margin along the sides. What are the most economical dimensions of each printed page?
 - (OR)
 (b) The demand function faced by firm is P=500+0.2 *x*, and its cost function is C = 25x + 10,000. Where P-price, x-output, C-cost. Find the output at which the profit of the firm maximum also find the price?

(OR)

- 12.(a) Evaluate $\int x3/(x2+1)^3 dx$.
 - (b) Evaluate $\int x^2/x^4 + 1 \, dx$.
- 13.(a) Solve using Cramer's rule
 - 2x 3y = 34x y = 11.

(OR)

(b) Solve the following equations by using inverse matrix method?

5x-6y+4z = 15 7x+4y-3z = 192x+y+6z = 46.