Course Code : BCS-012

Course Title : Basic Mathematics

Assignment Number : BCA(I)012/Assignment/2024-25

Maximum Marks : 100

Weightage : 25%

Last Date of Submission : 31stOctober, 2024 (For July Session)

30thApril, 2025 (For January Session)

Note: There are 16 questions in the following assignment carrying a total of 80 marks (each question carries 5 marks), Rest 20 marks are for viva-voce. Answer all the questions.

Q1: For what value of 'k' the points ( -k + 1, 2k), (k, 2 - 2k) and ( - 4 - k, 6 - 2k) are collinear.

Q2: Solve the following system of equations by using Matrix Inverse Method.

3x+ 4y+ 7z= 14 2x-y+ 3z= 4

2x + 2y - 3z = 0

Q3: Use principle of Mathematical Induction to prove that:

+

=

Q4: Add upto 39 + 13

Q5: If y = aemx + be-mx, Prove that d2y/dx2 = m2 y

Q6: Integrate function f(x) = x/[(x+1) (2x-1)] w.r.t x

Q7: If 1, w, w2 are Cube Roots of unity show that (1+ w)2 - (1 + w)3 + w2 =0.

# Q8: 2

2

-3

x

-

2

Q9:

Solve the inequality

(

x

-

(2-x)

and graph the solution set.

Q10: If a positive number exceeds its positive square root by 12, then find the number.

Q11: Find the area bounded by the curves x2 = y and y=x.

Q12: Find the inverse of the matrix A = , if it exists,

Q13: If m times the mth term of an A.P. is n times its nth term, show that (m + n)th term of the A.P. is zero.

Q14: Show that

i)does not exist ii) f(x) = |x| is continuous at x = 0.

Q15: Suriti wants to Invest at most 12000 in saving certificates and National Saving Bonds. She has to invest at least 2000 in Saving certificates and at least 4000 in National Saving Bonds. If Rate of

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Interest on saving certificates is 8% per annum and rate of interest on national saving bond is 10% per annum. How much money should she invest to earn maximum yearly income? Find also the maximum yearly income.

Q16: A spherical balloon is being Inflated at the rate of 900 cm3/sec. How fast is the Radius of the balloon Increasing when the Radius is15 cm.

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