Sl. NO: 226 BATCH: 2000-2016 Reg. No.:

END OF SEMESTER EXAMINATIONS, APRIL/MAY – 2018
BUSINESS MATHEMATICS
SUBJECT CODE: 13UBMAC1

MAJOR : B.Com. (CA) SEMESTER : III
TIME : 3 HOURS MAX. MARKS: 75

SECTION – A (10 X 1 = 10)

Answer All Questions:

1. Find the simple interest on the sum of Rs.6000 at 10% p.a for 3 years.
2. Define Sinking Fund.
3. Define Singleton set.
4. Write the formula to find the sum of the first n terms of an A.P.
5. Define a Singular matrix.
6. Find the Rank of a matrix $A = \begin{pmatrix} 1 & 2 \\ 2 & 4 \end{pmatrix}$.
7. Differentiate $y = \sqrt{x} + 3^m$.
8. Find $\frac{d}{dx}(x^n)$.
9. Evaluate $\int \frac{1}{x} dx$.
10. Write down the formula for $\int udv$ by the method of Integration by ports.

SECTION – B (5 X 4 = 20)

Answer Any FIVE Questions:

11. A certain sum amounts to Rs.4,000 at the end of 5 years at 12% p.a interest. Find the sum.
12. Calculate the compound interest for Rs.2500 for 4 years at 8% per annum.
13. Find the 20th term of the A.P. 6, 9, 12, 15, …
14. If A = {0, 1, 2}, B = {1, 3, 4}, C = {7, 8} are sets find A∪(B∪C) and (A∪B)∩C.
15. Find the rank of $A = \begin{pmatrix} 1 & 2 & 3 \\ 2 & 4 & 5 \\ 3 & 5 & 6 \end{pmatrix}$.
16. Find the Inverse of $A = \begin{pmatrix} 2 & 2 \\ 3 & 5 \end{pmatrix}$.
17. Differentiate the following with respect to x:
    i) $x^3 + 3\log x - 4e^x$
    ii) $y = e^{7x+9}$
18. The demand curve for a monopolist is given by X = 100-4P. Find the total revenue and average revenue.

SECTION – C (3 X 15 = 45)

Answer Any THREE Questions:

19. a) Find the cash value of a bill of Rs.4,200 due 5 months hence at 7.5% p.a.
    b) Mr.X borrows Rs.20,000 at 4% compound interest and agrees to pay both the principal and the interest in 10 equal instalments at the end of each year. Find the amount of these instalments.

20. a) The sum of 3 numbers in G.P is 35 and their product is 1000. Find the numbers.
    b) State & prove DeMorgon's law.

21. Solve the following simultaneous linear equations by matrix method:
    $2x - y + 3z = 1$
    $x + y + z = 2$
    $x - y + z = 4$

22. Find for what values of x the following expression is maximum and minimum respectively:
    $2x^3 - 21x^2 + 36x - 20$
    Find alos the maximum and minimum values.

23. a) Evaluate $\int x \log x dx$.
    b) Evaluate $\int x^2 - 4x + 5$.

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