CB

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EXAMINATION: JUNE- 2022
SEMESTER -III
Sub.: Business Mathematics (BBA15-314)

Date : 27/06/2022 **Total Marks : 60** **Time: 2.00 pm to 4.30 pm**

Instructions: 1) The paper consists of two sections I and II.
2) All questions are compulsory.

SECTION – I

Q. 1. Answer in Detail. (Any Two) **(20)**

1. Prove that $\left(\frac{\log_3 8}{\log_2 16 \times \log_2 10}\right) = 3\log_{10} 2$

2. Solve $5x + 2y = 8$ and $9x - 5y = 23$.

3. Solve $\frac{(\cos 7\theta + i\sin 7\theta)^8}{(\cos 6\theta + i\sin 6\theta)^7}$

4. The first and the last terms of an A.P.are respectively -4 and 146 and the sum of A.P. 7171. Find the number of terms of A.P. and also common difference.

Q. 2. Write short notes: (Any Two) **(10)**

1. Logarithms
2. Matrices
3. Derivative

SECTION – II

Q. 3. Choose the most appropriate option. **(20)**

1) $A = \begin{bmatrix} 2 & 6 \\ 8 & 7 \end{bmatrix}$ and $B = \begin{bmatrix} 6 & 7 \\ 4 & 9 \end{bmatrix}$ then A -B =.....

a) $\begin{bmatrix} -4 & -1 \\ 4 & -2 \end{bmatrix}$ b) $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$

c) $\begin{bmatrix} 2 & 3 \\ 2 & 4 \end{bmatrix}$ d) $\begin{bmatrix} 4 & 7 \\ 1 & 8 \end{bmatrix}$

2) Derivative of $x^5 - 3x^4 + 4$ with respect to x is .....
a) $5x^4-4x^3$ b) $3x^4-4x^3$
c) $4x^3-3x$ d) x^5-3x^2

3) a = 24 and b = 16 then G.M.=.....
a) 19.596 b) 195.95
c) 20 d) 1.9595

4) Derivative of $x^4 - 3x + 4$ with respect to x is .....
a) x^3-3 b) 3x-4
c) $4x^3-3$ d) x^5-3x^2

5) a = 14 and b = 16 then A.M.=.....

a) 15 b) 30

c) 20 d) 34

6) Two numbers are 7 and 8 then H.M.=.....

a) (112/15) b) 14

c) 112 d) 15

7) $Z_1 = 5 - 4i$ $Z_2 = 3 - 2i$ then I Z1-Z2 I =.....

a) 4 b) $\sqrt{8}$

c) 8 d) 9

8) Integration of sinx w.r.t. x is.....

a) sinx b) cosx

c) sinx cosx d) -cosx

9) Complex conjugate of the Z = 50 + 44i is .....

a) 50-44i b) 50i

c) 40-54i d) 44

10) $Sn = n^2+5n -1$ then S8 =.....

a) 103 b) 12

c) 104 d) 64

11) $3^x = 9^y$ is ……equation.

a) Quadratic b) exponential

c) linear d) logarithmic

12) $\log_{25} 625$ = ...

a) 2 b) 5

c) 4 d) 25

13) $\frac{d}{dx}\log x = ...$

a) 1 b)(1/x)

c) x d) 0

14) Z = 38 + 4i then $\overline{Z} =$ .....

a) 38-4i b) 38-i

c) 4-38i d) 40-i

15) If A=$\begin{bmatrix}1 & 8 & 9\end{bmatrix}$ is .....matrix.

a) row b) square

c) column d) identity

20) Every cubical equation has .....roots.

a) 3 b) 4

c) 2 d) 1

Q. 4. **(10)**

Compute A^{-1} when $A = \begin{bmatrix}3 & 1 & 2\\ 4 & 2 & 1\\ 3 & 1 & 2\end{bmatrix}$