Reg. No. ☐☐☐☐☐☐☐☐☐☐☐☐☐

BCMCMCN 202

II Semester B.Com. Examination, July/August 2023
(NEP 2020) (2021 – 22 Batch Onwards)
BUSINESS MATHEMATICS (DSCC)

Time : 2 Hours   Max. Marks : 60

SECTION – A
(2 marks each)

Answer **any five** of the following.   (5×2=10)

1. Find the HCF of 60 and 96.

2. What do you mean by rational number ?

3. If simple interest on a certain sum is ₹ 360 for 2 years @ 6% p.a., find the sum.

4. Two numbers are in the ratio 5 : 8. If the sum of the numbers is 195, find the number.

5. What do you mean by row matrix ? Give the example.

6. Find the LCM of 40, 72 and 135.

7. Find the value of $^{20}P_3$.

8. Calculate the area of a rectangle whose length is 5 cms and breadth is 10 cms.

SECTION – B
(5 marks each)

Answer **any four** of the following.   (4×5=20)

9. If 10 men can earn ₹ 9,000 in 18 days, how much will 15 men earn in 24 days ?

10. Find the amount of annuity if payment of ₹ 3,000 is made at the end of each year for 4 years at the rate of 10% p.a.

P.T.O.

11. Find the compound interest on ₹ 25,000 for 2 years at 8% p.a.

12. Prove that $\dfrac{5.2^{x+3} - 7.2^{x+2}}{2^{x+1} + 6.2^{x}} = \dfrac{3}{2}$.

13. Find the number of permutation of the letters of the word "MANAGEMENT".

14. If $A = \begin{bmatrix} 4 & 2 & -1 \\ 3 & -7 & 1 \end{bmatrix}$ and $B = \begin{bmatrix} 2 & 3 \\ -3 & 0 \\ -1 & 5 \end{bmatrix}$. Find $(AB)' = B' A'$.

SECTION – C

(15 marks each)

Answer **any two** of the following. $\hspace{2cm}$ (2×15=30)

15. a) Solve : $5x + 2y = 8$
$\hspace{3.5cm} 9x - 5y = 23$ $\hspace{4cm}$ 7

$\hspace{0.7cm}$ b) If $A = \begin{bmatrix} 1 & 2 & 2 \\ 2 & 1 & 2 \\ 2 & 2 & 1 \end{bmatrix}$ prove that $A^2 - 4A + 5I = 0$. $\hspace{1cm}$ 8

16. a) Solve $x + \dfrac{1}{x} = \dfrac{5}{2}$. $\hspace{7cm}$ 7

$\hspace{0.7cm}$ b) In a class of 120 students, each student is required to take at least one of the two subjects namely Business Mathematics or Statistics. If 65 students have taken statistics and 22 have taken both Business Mathematics and Statistics, how many have taken Business Mathematics. Show the result with the help of a Venn diagram. $\hspace{1cm}$ 8

17. a) The height of a cone is 24 cm and its base diameter is 14 cm. Find the curved surface area, total surface area and volume of the cone $\left(\text{take } \pi = \dfrac{22}{7} \right)$. $\hspace{0.3cm}$ 12

$\hspace{0.7cm}$ b) If the area of a circle is 38.5 m^2, find its perimeter $\left(\text{take } \pi = \dfrac{22}{7} \right)$. $\hspace{0.5cm}$ 3

18. a) In how many ways can 4 white and 3 black balls be selected from a box containing 20 white and 15 black balls. $\hspace{2cm}$ 10

$\hspace{0.7cm}$ b) Distribute ₹ 2,550 among A, B and C in such a way that B will get 25% more than A and C will get 25% less than B. $\hspace{2cm}$ 5

———————