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**BCMCMCN 202**

**II Semester B.Com. Examination, September 2022  
(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. What is a prime number ? Give examples.
2. Find the HCF of 64 and 80.
3. Simplify  $(216)^{2/3}$ .
4. Find the LCM of 18, 27 and 54.
5. Find the ratio of 250 gms to 1 kg.
6. Compute  $\frac{7!}{5!}$ .
7. Find the area of a square whose side is 9 cm.
8. In what time will a sum ₹ 2,000 amounts to ₹ 2,240 at the rate of 4% p.a simple interest ?

**SECTION – B  
(5 Marks each)**

Answer **any four** of the following questions :

**(4×5=20)**

9. Show that  $\frac{3 \cdot 2^{n+1} + 2^n}{2^{n+2} - 2^{n-1}} = 2$ .
10. Find the compound interest on ₹ 10,000 for 9 months at 8% p.a, if the interest is compounded quarterly.

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11. Solve :  $3x + 7y = 13$   
 $5x - 2y = 8.$
12. Two numbers are in the ratio of 7:3. Their difference is 20. Find the numbers.
13. How many 3 digit numbers can be formed by using the digits 1 to 9 if no digit is repeated ?
14. Find the circumference of the circle whose radius is 3.5 cms.

**SECTION – C**  
**(15 Marks each)**

Answer **any two** of the following questions :

**(2×15=30)**

15. a) If  $A = \begin{bmatrix} 3 & -2 & 4 \\ 2 & 1 & 0 \end{bmatrix}$ ,  $B = \begin{bmatrix} 1 & -1 & 4 \\ 6 & 2 & 5 \end{bmatrix}$  verify that
  - i)  $(A + B)' = A' + B'$  8
  - ii)  $(A - B)' = A' - B'$ .
- b) If  $A = \begin{bmatrix} 3 & 2 \\ 4 & 1 \end{bmatrix}$  prove that  $A^2 - 4A - 5I = 0$ . 7
16. a) Solve  $\frac{1}{x-2} + \frac{2}{x-1} = \frac{6}{x}$ . 8
- b) Find the amount of an immediate annuity consisting of 6 annual payments of ₹ 400, if the rate of interest is 5% compounded annually. 7
17. a) In a certain town, there are 5000 people. Out of them, 1200 do not subscribe for any news paper. 2,700 subscribe for 'The Hindu' and 1800 subscribe for Indian Express. Find how many subscribe for both. Also show the data by Venn Diagram. 10
- b) If  $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9\}$ ,  $A = \{2, 3, 5\}$ ,  $B = \{2, 6, 9\}$  and  $C = \{6, 7, 8\}$  then find the following :
  - a)  $A \cap B$  5
  - b)  $(A \cup C)'$ .
18. a) The area of a square is 1296 sq.feet. Find its perimeter. 5
- b) From 6 boys and 4 girls, 5 are to be selected for admission for a particular course. In how many ways can this be done, if there must be exactly 2 girls ? 5
- c) Find the area of a triangle whose sides are 16, 18 and 20 inches. 5