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K19U 2559

Reg. No. : .....

Name : .....

III Semester B.Com Degree (CBCSS-Reg./Sup./Imp.)
Examination, November - 2019
(2014 Admn. Onwards)
GENERAL COURSE
3A12 COM : NUMERICAL SKILLS FOR BUSINESS

Time : 3 Hours Max. Marks : 40

Part - A

Answer **all** questions. Each question carries ½ mark. (4×½=2)

1. If P and Q are disjoint sets, then $P \cap Q$ is _____

   a) P b) Q

   c) $\varnothing$ d) $P \subset Q$

2. The value of $\begin{bmatrix} 8 & 8 \\ 9 & 7 \end{bmatrix}$ is _____

   a) 16 b) -16

   c) 8 d) -8

3. The simple interest for a sum of Rs. 2,800 for two years @ 9% p.a is _____

   a) Rs:56 b) Rs:252

   c) Rs:504 d) Rs:527

4. If $X^4-256=0$, then X = _____

   a) 4 b) -4

   c) ±4 d) ±16

P.T.O.

Part - B

Answer any **Four** questions. Each question carries **1** mark. **(4×1=4)**

5. What is meant by Void Matrix? Give example.
6. Solve $2(3x-25)-3x=7(25-x)-5x$.
7. If $x=2+\sqrt{3}$, prove that $x^2-4x+1=0$.
8. If the ratio of two numbers is 8 : 11 and the difference is 135. Find the numbers.
9. Show that $(x/y)^{-n}=(y/x)^n$
10. The difference between simple interest and compound interest on a sum is 30 at 9% p.a. for 3 years. Find out the principal.

Part - C

Answer any **six** questions (not exceeding one page). Each question carries **3** marks. **(6×3=18)**

11. Solve $p + q = 3$, $p/q + q/p = 5/2$.
12. In a survey of 100 families the numbers that read the most recent issues of various magazines were found to be as follows:

    Readers' Digest : 28, Readers' Digest & Science Today : 8,

    Science Today : 30, Readers' Digest & Caravan : 10,

    Caravan : 42, Science Today & Caravan : 5,

    All the 3 magazines : 3

    Using set theory, find:

    (a) How many read none of these 3 magazines?

    (b) How many read Caravan as their only magazine?

13. Simplify $\frac{20}{2\sqrt{2+\sqrt{3}}}+\frac{47}{4\sqrt{3+1}}-\frac{62}{4\sqrt{2+1}}$.
14. Ten years ago the age of a father was four times of his son. Ten years hence the age of father will be twice that of his son. What are the present ages of the father and the son.

15. A man can complete a job in 3 hours, while a woman can do the same job in 4 hours. How much time it will take for them to do the job together?

16. Three containers have their volumes in the ratio of 3:4:5. They are full of mixture of milk and water. The mixtures contain milk and water in the ratio of (4:1), (3:1) and (5:2) respectively. The contents of all these three containers are poured into a fourth container. Find the ratio of milk and water in the fourth container.

17. Find the solution set graphically for the following system of inequalities:

$X+Y \leq 5, \quad X \geq 0, \quad Y \geq 0$

18. Construct truth table to the following relation: $-(-p \wedge q) \equiv p \vee \sim q$

Part - D

Answer any **Two** questions. Each question carries **8** marks. **(2×8=16)**

19. If $A=\begin{bmatrix} 1 & 3 & 3 \\ 3 & 1 & 3 \\ 3 & 3 & 1 \end{bmatrix}$, show that $A^2-5A-14\ I=0$, where I=identity matrix.

20. Solve the following equations:

$4x-y+2z=9$

$3x+2y+z=13$

$x+3y-z=7$

21. A certain sum amounts to Rs: 6780 in two years and to Rs: 7365 in 3.5 years under simple interest system. Find the sum invested.