K15U 0254

Reg. No. : .....

Name : .....

III Semester B.Com. Degree (CCSS – 2014 Admn. – Regular) Examination, November 2015
General Course for B.Com.
3A12 COM : NUMERICAL SKILLS FOR BUSINESS

Time : 3 Hours Max. Marks : 40

PART – A

Answer **all** questions. **Each** carries $^1/_2$ marks.

1. The sum of first n natural number is

   a) $\frac{n+1}{2}$ b) $\frac{n-1}{2}$

   c) $\frac{n(n-1)}{2}$ d) $\frac{n(n+1)}{2}$

2. The simplest form of 8 : 12 : 24 is

   a) 4 : 3 : 6 b) 2 : 3 : 6

   c) 6 : 4 : 2 d) 2 : 6 : 3

3. If $4^n = 1024$, then n is

   a) 5 b) 8

   c) 10 d) 12

4. $\frac{\sqrt{5}-\sqrt{3}}{\sqrt{5}+\sqrt{3}}$ is

   a) $4-\sqrt{15}$ b) 2

   c) 3 d) None of these $(4\times{}^1/_2=2)$

P.T.O.

PART – B

Answer **four** questions. **Each** carries **one** mark.

5. If a : b = 3 : 4 and b : c = 5 : 6, then the ratio of a : c is

6. Simple interest on Rs. 1,500 at 7% per annum for a certain time is Rs. 210. Find the time.

7. The average of two numbers is xy. If one number is x, then the other number is

8. Construct a 3×4 matrix whose elements are given by $aij = \frac{1}{2}|-3i + j|$

9. Solve $3x - y = 3$
   $6x + y = 3$

10. The Venn diagram for A – B is. **(4×1=4)**

PART – C

Answer **any six** questions. **Each** carries **three** marks.

11. Solve the following system of inequalities graphically
    $x + 2y \leq 8$, $2x + y \leq 8$, $x \geq 0$, $y \geq 0$.

12. Let $A = \begin{bmatrix} 2 & 3 \\ -1 & 2 \end{bmatrix}$. Find A^3.

13. The difference between the compound interest and the simple interest on a certain sum at 10% per annum for two years is Rs. 60. Find the sum.

14. Solve $\frac{1}{x-3} + \frac{1}{x+5} = \frac{1}{3}$.

15. The average of 2, 7, 6, x is 5 and the average of 18, 16, x, y is 10. What is the value of y ?

16. The sides of a triangle are in the ratio of $\frac{1}{2}:\frac{1}{3}:\frac{1}{4}$. If the perimeter is 104 cm's. Find the length of the smallest side.

17. If $\begin{vmatrix} x & 2 \\ 18 & x \end{vmatrix} = \begin{vmatrix} 6 & 2 \\ 18 & 6 \end{vmatrix}$ then x is.

18. Find adjA if $A = \begin{bmatrix} \cos\alpha & -\sin\alpha & 0 \\ \sin\alpha & \cos\alpha & 0 \\ 0 & 0 & 1 \end{bmatrix}$ **(6×3=18)**

PART – D

Answer **any two** questions. **Each** carries **eight** marks.

19. Solve $2x + y + z = 1$

$$x - 2y - z = \frac{3}{2}$$

$$3y - 5z = 9$$

20. Let $A = \begin{bmatrix} 1 & -2 & 1 \\ -2 & 3 & 1 \\ 1 & 1 & 5 \end{bmatrix}$

Verify that

i) $(adjA)^{-1} = adj(A^{-1})$

ii) $(A^{-1})^{-1} = A$.

21. Find the rank of the given matrix

$$\begin{bmatrix} 0 & 1 & -3 & -1 \\ 1 & 0 & 1 & 1 \\ 3 & 1 & 0 & 2 \\ 1 & 1 & -2 & 0 \end{bmatrix}$$

(2×8=16)