UN – 357

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I Semester B.Com. Examination, November/December 2015

(Prior to 2012-13)

(Repeaters) (100-2011-12 Only) (90 – Prior to 2011-12)

COMMERCE

Business Mathematics

Time : 3 Hours Max. Marks : 100/90

Instruction : *Answer should be written complete either in* ***Kannada*** *or in* ***English.***

SECTION – A

Answer **any ten** sub-questions of the following. **Each** sub-question carries **2** marks. **(10×2=20)**

1. a) What are Real Numbers ?

   b) What is arithmetic progression ?

   c) What is diagonal Matrix.

   d) Find the smallest number divisible by 8, 12 and 16.

   e) What do you mean by prime ?

   f) What are quadratic Equations ?

   g) Find the H.C.F. of 30, 60 and 90.

   h) Find the simple interest on ₹ 300 at 8% p.a. for 14 weeks.

   i) What is annuity ?

   j) What is Banker's Discount ?

   k) LCM of two numbers is 432 and their HCF is 72. If one number is 144, find the other.

   l) Find the 5^{th} term of the sequence 15, 18, 21, ...

P.T.O.

SECTION – B

Answer **any 5** questions. **Each** question carries **5** marks. **(5×5=25)**

2. Solve : for 'x' ; $\frac{5x+8}{5x+7} = \frac{3x+3}{3x+5}$.

3. If $A = \begin{bmatrix} 3 & 1 \\ -1 & 2 \end{bmatrix}$ show that $A^2 - 5A + 7I = 0$.

4. Find the simple interest and compound interest on ₹ 3,000 in 3 years at 4% p.a. and find the difference.

5. Solve using formula method :

   $x^2 - 3x - 10 = 0$

6. Solve : $5x - 2y = -25$

   $-3x + 4y = 29$ by substitution method.

7. A father is 28 years older than his daughter. In 5 years the father's age will be 7 years more than twice that of the daughter. Find their present age.

8. Divide ₹ 354 among A, B and C, in the ratio – A : B = 3 : 4 and B : C = 5 : 6

SECTION – C

Answer **any 3** questions. **Each** question carries **15** marks. **(3×15=45)**

9. a) Solve for x ; $\frac{3x-1}{2} + \frac{x+2}{3} = \frac{9x+12}{5} - 2$

   b) If $A = \begin{bmatrix} 1 & 5 & 6 \\ 7 & 8 & 9 \\ 0 & 1 & 2 \end{bmatrix}$ $B = \begin{bmatrix} 4 & 2 & 3 \\ 0 & 1 & 2 \\ 3 & 4 & 5 \end{bmatrix}$

   Find :

   i) $A + 2B$

   ii) $2A - B$.

10. a) Solve by Cramer's rule

$3x + 5y = 8$

$6x + 5y = 11$

b) If $A = \begin{bmatrix} 1 & 3 \\ 4 & 2 \end{bmatrix}$ $B = \begin{bmatrix} 2 & 1 \\ 3 & 4 \end{bmatrix}$ find AB' and $A'B$.

11. a) Find the sum of all numbers between 100 and 400 which are divisible by 7.

b) Solve : $\frac{1}{x+1} + \frac{3}{x+4} = \frac{4}{x+3}$.

12. a) The sum of three numbers in A.P. is 24 and their product is 440. Find the numbers.

b) Insert 5 arithmetic mean between 19 and 34.

13. a) Solve for y if $\begin{vmatrix} 2 & 4 & 10 \\ 4 & 2y & 20 \\ 6 & 2 & 4 \end{vmatrix} = 0$

b) Solve, $x + \frac{1}{x} = 2\frac{9}{10}$.

SECTION – D

(**2011-12** Batch only) : **(1×10=10)**

14. a) Find Inverse of $A = \begin{bmatrix} 4 & 6 \\ 6 & 9 \end{bmatrix}$.

b) Solve the equation

$(2x - 7)(3x + 1) = (2x + 5)(3x - 1)$.