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SN – 588

I Semester B.Com. Examination, Nov./Dec. 2014
(Prior to 2012-13)
(Repeaters)
COMMERCE
Business Mathematics
(100 – 2011-12 only)
(90 – Prior to 2011-12)

Time : 3 Hours

Max. Marks : 100/90

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

SECTION – A

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

1. a) What are Real numbers ?
- b) Find the HCF of 16, 24 and 44.
- c) What are Quadratic Equations ?
- d) Solve : $5x^2 = 28 - 2x^2$.
- e) What is Diagonal matrix ?
- f) If $A = \begin{bmatrix} 3 & 6 & 0 & 9 \\ 4 & 2 & -1 & 5 \end{bmatrix}$, $B = \begin{bmatrix} 6 & 3 & 0 & 9 \\ 3 & -3 & 6 & 9 \end{bmatrix}$, find $A + B$.
- g) What do you mean by ratio ?
- h) Find the simple interest on ₹ 5,000 for 5 years at 14% p.a.
- i) What is Progression ?
- j) Which term of A. P. 5, 10, 15, ... is 130 ?
- k) If $15 : 60 :: 9 : x$, find the value of x .
- l) What is annuity ?

SECTION – B

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

2. Find the greatest number that can divide 137, 183 and 230, leaving the remainders 2, 3 and 5 respectively.
3. Solve : $2x + 3y = 42$
 $5x - y = 20$.
4. The 3rd term of G P is 12 and 6th term is 96. Find the 4th term and common ratio.

P.T.O.



5. If $A = \begin{bmatrix} 2 & 4 & 7 \\ 9 & 0 & -3 \\ -6 & -8 & -5 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & 2 & 5 \\ 3 & 7 & 9 \\ 4 & -2 & -7 \end{bmatrix}$, find $4A + B$.
6. A father is 40 years older than his daughter. In 10 years the father's age will be 16 years more than 3 times the age of his daughter. Find their present ages.
7. If 15 men working 12 hours per day, perform a job in 16 days, how long will it take, if 21 men working 10 hours daily to do the same job ?
8. At what rate percent compound interest p.a. will ₹ 640 amount to ₹ 774.40 in 2 years ?

SECTION – C

Answer any 3 questions. Each question carries 15 marks.

(3×15=45)

9. a) A man sold two radios at ₹ 924 each. On one he gains 20% and on another he loses 20%. How much does he gain or lose on the whole transaction ?
 b) Solve by Cramer's rule.
 $x + 2y = -6$
 $2x - 3y = -4$.
10. a) Rajesh spends 20% of his income for rent and $\frac{2}{3}$ of the remaining for other expenses. If he saves ₹ 133.35 per month, find his monthly income.
 b) If $A = \begin{bmatrix} 1 & 2 & 3 \\ 2 & 4 & 6 \\ 1 & 2 & 3 \end{bmatrix}$ prove that $(5A)' = 5A'$.
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) Solve for A and B if $3A + 2B = \begin{bmatrix} 21 & 16 & 1 \\ 21 & 2 & 12 \end{bmatrix}$ and $2A - 3B = \begin{bmatrix} -12 & -11 & 5 \\ 1 & -16 & 8 \end{bmatrix}$.
 b) Solve the equation $(2x - 7)(3x + 1) = (2x + 5)(3x - 1)$.
13. a) A purchases 4 tons of wheat and 3 tons of sugar for ₹ 31,000 and B purchases 3 tons of wheat and 2 tons of sugar for ₹ 22,000. Find out the purchase price of a ton of wheat and a ton of sugar.
 b) The sum of 3 numbers of a GP is 31 and their product is 125. Find the numbers.

SECTION – D

(2011-12 Batch only).

(1×10=10)

14. a) Insert four arithmetic means between 71 and 56.
 b) Solve for x : $2x^2 - 7x + 3 = 0$.