

Goa Vidyaprasarak Mandal's
GOPAL GOVIND POY RAITURCAR COLLEGE OF COMMERCE AND
ECONOMICS PONDA GOA

B.COM. CBCS (SEMESTER I) EXAMINATION JANUARY 2021

COMMERCIAL ARITHMETIC

Duration: 2 hours

Marks: 40

Q.I Attempt ANY 5 out of 8 from the following: (5 x 2 = 10)

- 1) Check whether the given statement is Tautology, contradiction or neither
 $p \wedge [\sim (p \vee q)]$.
- 2) If $A = \begin{bmatrix} 2 & 1 \\ 4 & 1 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & -5 \\ 3 & 2 \end{bmatrix}$, find the matrix $5A - 3B$.
- 3) A 4 digits number is to be formed using the digits from 0 to 5. How many such numbers can be formed if the repetition of digits in the number is allowed.
- 4) Find the amount of an ordinary annuity of ₹ 6400 p.a. for 3 years at the rate of interest of 10% per period.
- 5) The third term of a G.P. is 12 and the sixth term is 96, find its first term and the common ratio.
- 6) A committee of 5 members is to be formed out of 6 men and 4 women. In how many ways committee can be formed to have 4 men and a woman ?
- 7) A and B are two subsets of the universal set X such that $n(X)=99$, $n(A^c)=80$, $n(B^c) = 85$ and $n[(A \cap B)^c] = 94$, find $n(A \cup B)$.
- 8) In how many years, the amount of money will be double the principal at compound interest of 12% per annum ?

Q.II Attempt ANY 2 out of 3 from the following: (2 x 5 = 10)

1) If $4 \times {}^n P_3 = 5 \times {}^{n-1} P_3$, find n.

2) Using Cramers's rule solve the following equations

$$2x + 5y - 19 = 0 \text{ and } 5x - y = 7.$$

3) A person is promised the final amount of a half yearly ordinary annuity with periodic payment of ` 1600, the duration of the annuity being 4 years and the rate of interest is 10% to be compounded half-yearly. Find the present value of the annuity.

Q.III Attempt ANY 4 out of 6 from the following: (4 x 5 = 20)

1) Find the sum of numbers between 200 and 300 which are exactly divisible by 5.

2) Prove that $(p \wedge q) \rightarrow (p \vee q)$ is a tautology.

3) Find x if $\begin{vmatrix} x & 1 & 2 \\ 3 & 4 & 3 \\ 1 & 3 & 2 \end{vmatrix} = 6$

4) Find the simple interest on 25000 from 15th November 2015 to 14th February 2016 at 6% per annum.

5) Find the amount of ordinary annuity with periodic payment as 5000, at the rate of interest 10% per annum, for 2 years if the period of payment is half yearly.

6) A club has 5 girls and 7 boys. If 4 persons out of these are to be selected, find the total number of choices if there is no restriction on gender.