

B.B.A. Semester - 1 (NEP-2020) Examination

OCT/NOV-2025

Basic Mathematics (Multidisciplinary Course)

Time: 2:00 Hours

Marks:50

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate marks.

- Que.1 (A) If ${}^{10}P_{n-1} : {}^{11}P_{n-2} = 30 : 11$, find n. (05)
- (B) How many numbers between 3000 & 4000 can be formed by using the digits 1, 2, 3, 4, 5, 6 once only. (05)

OR

- Que.1 (A) If ${}^{10}C_{n+1} : {}^{10}C_n = 7:4$ then find n. (05)
- (B) In how many ways can a committee of 5 persons be formed out of 6 boys and 7 girls such that each committee must include at least one boy. (05)
- Que.2 (A) Find the value of $(\sqrt{3} + 1)^5 - (\sqrt{3} - 1)^5$. (05)
- (B) Find the fourth term in the expansion of $\left(\frac{2x}{3} - \frac{3}{2x}\right)^6$. (05)

OR

- Que.2 (A) Find the middle terms of $\left(\frac{2x}{3} - \frac{3y}{2}\right)^9$. (05)
- (B) State binomial theorem and give its characteristics. (05)
- Que.3 Explain the principle of Mathematical Induction. (10)

OR

- Que.3 By the method of induction prove that: $1^2 + 2^2 + 3^2 + 4^2 + \dots + n^2 = \frac{n(n+1)(2n+1)}{6}$.
- Que.4 (A) The 6th term of an A.P. is 47 and its 10th term is 75, find its 30th term. (05)
- (B) If the 3rd term of an A.P. is 9 and its 9th term is 21, find the sum of its 40 term. (05)

OR

- Que.4 (A) The 3rd term of a G.P. is 3 and its 6th term is 81, find the sum of its first six terms. (05)
- (B) The 3rd term of a G.P. is the square of its first term and its 5th term is 64, find its first term and the common ratio. (05)
- Que.5 Estimate the missing values : (10)

Year	2014	2016	2018	2020	2022
Production	148	157	?	181	202

OR

- Que.5 The values of x and y are given below :

x :	5	6	9	11
y :	12	10	14	16

Find the value of y when x = 10 by using Lagrange's method.
