



DCY-19BBA103

Seat No. _____

B. B. A. (Sem. I) (CBCS) (Sem. I) (W.E.F. 2019) Examination

July – 2022

Mathematics : 19BBA103

(Elements of Business Mathematics) (New Course)

Time : $2\frac{1}{2}$ Hours]

[Total Marks : 70

- Instructions :** (i) Each question carries equal marks.
(ii) Attempt any four questions.

- 1 (a) Prove that $nP_r = n(n-1)(n-2)\dots(n-r+1)$. **7.5**
(b) Find the value of n . **10**
(i) $nP_5 = 240240$
(ii) $11 \times nP_3 = 6 \times (n+2)P_3$
- 2 (a) Explain : Combination. **7.5**
(b) In a college student group there are 5 girls and 4 boys. **10**
In how many ways principal can form a committee of 5 students in such a way that
(i) at the most 3 girls
(ii) at least 2 boys
- 3 (a) Prove that $S_n = \frac{n}{2}(2a + (n-1)d)$. **7.5**
(b) $S_8 = 124, S_{11} = 220$, in A.P. find T_{25} and S_{25} . **10**
- 4 (a) Explain : Geometric Progression. **7.5**
(b) Find sum of $0.4 + 0.44 + 0.444 + \dots n$ terms. **10**

- 5 (a) Expand $\left(3x + \frac{2}{y}\right)^5$. 7.5
- (b) Find the 4th term in the expansion of $(x - 2y)^8$. 10
- 6 (a) Find the value of $(51)^4$. 7.5
- (b) Find the coefficient of x^7 in the expansion of $\left(x^2 + \frac{1}{x}\right)^{11}$. 10
- 7 (a) By using principle of mathematical induction prove that 7.5

$$1^3 + 2^3 + 3^3 + \dots + n^3 = \frac{n^2(n+1)^2}{4}$$
- (b) Find sum of n terms of 10
 $1 \times 4 + 3 \times 7 + 5 \times 10 + \dots$
- 8 (a) By using principle of mathematical induction prove that 7.5
 $1 + 3 + 5 + \dots + (2n - 1) = n^2$
- (b) Find the sum 10
- (i) $10 + 11 + 12 + \dots + 100$
- (ii) $\sum_{n=51}^{70} n^3$
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