



BB-161100010103 Seat No. _____

B. B. A. (Sem. I) (CBCS) (W.E.F.-2016) Examination

March – 2021

Mathematics

(Elements of Business Mathematics)

(Old Course)

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

[Total Marks : 70

Instructions :

- (1) Each question carries equal marks.
- (2) Attempt any five questions.

- 1 (a) Explain : Permutations. 7
(b) Find the value of n ${}_{11}P_3 = 6 \times (n+2)p_3$. 7
- 2 (a) Explain : Combination. 7
(b) If ${}_{10}C_{n+1} : {}_{10}C_n = 7 : 4$, then find n . 7
- 3 (a) Explain : Arithmetic Progression. 7
(b) In A.P. $T_{10} = 32$, $T_8 = 26$, find T_{21} . 7
- 4 (a) Explain : Geometric progression. 7
(b) In G.P. $T_5 = 32$, $T_{10} = 1024$ find T_8 . 7
- 5 (a) Expand : $\left(2x + \frac{3}{x}\right)^4$. 7
(b) Find the value of $(\sqrt{5} + 1)^5 - (\sqrt{5} - 1)^5$. 7

6 (a) Find the middle term in the expansion of $\left(\frac{x}{2} - \frac{1}{x^2}\right)^{10}$. 7

(b) Find the value of $(1001)^3$. 7

7 (a) Explain : Interpolation. 7

(b) Find the missing value : 7

$x :$	1	2	3	4	5
$y :$	2	5	7	-	32

8 Estimate the value of y when $x = 9$ by using Lagrange's method : 14

$x :$	5	7	11	13	17
$y :$	150	392	1452	2366	5202

9 (a) Using mathematical induction principle prove that 7

$$1 + 2 + 3 + \dots + n = \frac{n(n+1)}{2}.$$

(b) Find sum 7

$$40^3 + 41^3 + 42^3 + \dots + 50^3$$

10 Find sum of n terms of series : 14

$$1 \times 5 + 2 \times 6 + 3 \times 7 + \dots$$