



PBL-161100010103

Seat No. _____

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

November / December - 2018

Elements of Business Mathematics

(New Course)

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

[Total Marks : 70

1 (a) Find the value of n 7

(1) $nP_3 = 210$

(2) $11 \cdot nP_3 = 6 \cdot {}^{(n+2)}P_3$

(b) How many words can be formed by using the letters 7
of the word "BUSINESS" ? Find the number of words
in which all the letters "S" are together. Also find the
number of words start with BUSI.

OR

1 (a) Define combination and prove that 7

$$nC_r + nC_{r-1} = {}^{n+1}C_r$$

(b) (i) Find k if 3

$${}^{12}C_5 + 2({}^{12}C_4) + {}^{12}C_3 = {}^{14}C_k$$

(ii) A committee of 6 ministers is to be formed from 4
16 cabinet ministers. In how many ways can it be
formed so as to include PM (Prime Minister) and
FM (Finance Minister) ? However, if 4-particular
ministers are not to be included in the committee,
in how many ways can it be formed ?

2 (a) Find the sum upto the required number of terms of 7
the following :

(i) 100, 93, 86, 76 (Upto 20 terms)

(ii) 7, 9.5, 12, 14.5,..... (Upto 30 terms)

(b) In AP $S_7 = 168$ and $T_{11} = 59$ find sum of first 30 7
terms.

OR

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[Contd....

- 2 (a) Define Geometric Progression and obtain S_n formula in GP. 7
 (b) The sum of three numbers in AP is 30. If 2, 4 and 3 are deducted from them respectively the resulting numbers form a GP. Find the numbers. 7

- 3 (a) Expand $\left(2x - \frac{1}{x}\right)^5$ 7
 (b) Obtain the middle terms in the expansion of $\left(\frac{2x}{3} - \frac{3}{2y}\right)^9$ 7

OR

- 3 (a) Find the constant term in expansion of $\left(\frac{4x^2}{3} - \frac{3}{x}\right)^9$ 7
 (b) If the coefficient of x^2 and x^3 in the expansion of $(3 + kx)^9$ are equal find k. 7

- 4 (a) Explain Interpolation and Extrapolation. 7
 (b) Find missing value. 7

x	10	11	12	13	14	15	16
y	160	172	??	179	182	195	210

OR

- 4 From the following data find value of $f(0)$ by using Langrage's method : 14

x	-2	-1	2	3
f(x)	-3	2	5	10

- 5 (a) Prove by principle of Mathematical induction that 7
 $1 + 4 + 7 + \dots + (3n - 2) = \frac{n}{2}(3n - 1)$
 (b) Using principle of Mathematical induction prove that 7
 $1^2 + 2^2 + \dots + n^2 = \frac{n(n+1)((2n+1))}{6}$

OR

- 5 (a) Find sum of 7
 (i) $12^2 + 13^2 + \dots + (35)^2$
 (ii) $9^3 + 10^3 + \dots + (20)^3$
 (b) Find the sum of n terms of the following series : 7
 $3.8 + 5.11 + 7.14 + 9.17 + \dots + n$ terms