

B.B.A. Semester - 1 (CBCS) Examination

Oct/Nov-2025 (New Course)

ELEMENTS OF BUSINESS MATHEMATICS(ELECTIVE/ALLIED)

Time: 2:30 Hours

Marks:70

Instructions:

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

Que.1	(A)	Define 'permutation' and 'combination'	(07)
	(B)	Find value of 'n'	(07)
	(i)	${}^n P_3 = 210$	
	(ii)	$11 \cdot {}^n P_3 = 6 \cdot {}^{n+2} P_3$	

OR

Que.1	(A)	If ${}^{20}C_{3r} = {}^{20}C_{2r+5}$ find 'r'	(07)
	(B)	Out of six boys and four girls in how many ways a committee of five members can be formed in which (i) there are at the most 2 girls (ii) a particular boy is included and a particular girl is excluded.	(07)

Que.2	(A)	Find value of $(2 + \sqrt{5})^5 + (2 - \sqrt{5})^5$	(07)
	(B)	Find middle term in the expansion of $(x - \frac{1}{x})^{11}$	(07)

OR

Que.2	(A)	Find the constant term in the expansion of $(3x^2 - \frac{1}{x})^9$	(07)
	(B)	The fifth term in the expansion of $(1+x)^{11}$ is 24 times its third term find value of x.	(07)

Que.3	(A)	In usual notation prove that $1^2+2^2+3^2+4^2+\dots+n^2 = \frac{n(n+1)(2n+1)}{6}$	(07)
	(B)	By using principal of Mathematical Induction prove that: $2.5 + 4.8 + 6.11 + \dots + 2n(3n+2) = n(n+1)(2n-3)$	(07)

OR

Que.3	(A)	In usual notation prove that $1+2+3+4+\dots+n = \frac{n(n+1)}{2}$	(07)
	(B)	Find the sum of $8^2+9^2+10^2+\dots+15^2$	(07)

OR

Que.4	(A)	Define (i) Arithmetic and geometric progression.	(07)
	(B)	The 12 th term of an Arithmetic Progression exceeds its 3 rd term by 36 and its 16 th term is 64. Find the series.	(07)

OR

Que.4	(A)	In usual notation prove that $s_n = \frac{n}{2}(a+1)$	(07)
	(B)	Find three numbers in G.P. such that their sum is 35 and their product is 1000.	(07)
Que.5	(A)	Explain the meaning of interpolation and extrapolation. State their Uses.	(07)
	(B)	From the following data interpolate y for x = 26	(07)

x	20	25	30	35	40
y	23	26	30	35	42

OR

Que.5	(A)	Find missing value from the following data.	(07)
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year	1975	1980	1985	1990	1995
Population (in '000')	12	14	18	24	?

(B)	Find value of f(5) from the following data.	(07)
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x	0	2	3
f(x)	2	6	10
