SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN (AUTONOMOUS)
(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)
Chromepet, Chennai — 600 044.
B.Com.(Honours) END SEMESTER EXAMINATION APRIL/NOV - 2021
SEMESTER - III
20UBHCT3009 - Business Mathematics

Total Duration	**: 3 Hrs**	**Total Marks**	**: 75**
MCQ	: 30 Mins	MCQ	: 15
Descriptive	: 2 Hrs.30 Mins	Descriptive	: 60

Section B

Answer any **SIX** questions $(6 \times 5 = 30$ Marks)

1. Given U = {1,2,3,4,5,6,7}
   A = {1,2,3,4,5}
   B = {1,3,5,7}
   C = {2,5,6,7}
   Find$(i) A \cup C (ii) B \cap A (iii) C – A (iv) C \cap A$
2. Given: 2x+9y:3x+4y = 3 : 4. Find the ratio of x to y.
3. Four coins are tossed. Find the probability of getting 2 head and 2 tails.
4. Differentiate the following with respect to x.
   $(a)(3x^2 + 4x - 5)^3 (b) e^{3x^2+2x+3}$
5. Add the binary numbers 11101 and 10011 and verify from the decimal number system.
6. In a survey of 5000 persons, it was found that 2,800 read Indian Express and 2,300 read statesman while 400 read both papers. How many read neither Indian Express nor statesmen?
7. If x varies as y and x = 8 when y = 15 find x when y = 10.
8. A perfect die is tossed twice. Find the probability of getting a total of 9.

Section C

Part A

Answer any **TWO** questions $(2 \times 10 = 20$ Marks)

9. If a/3 = b/4 = c/7 show that a+b+c / c =2.
10. A bag contains 4 white and 6 black balls. Two balls are drawn at random. What is the probability that (a) both are white, (b) both are back, (c) one white and one black?

Contd...

11. Find the inverse of $\begin{bmatrix} 2 & 3 & 4 \\ 3 & 2 & 1 \\ 1 & 1 & -2 \end{bmatrix}$

12. Calculate the following integral in different ways:
    $I = \int_0^{\frac{x}{2}} sin\left[\frac{\pi}{4} - x\right] dx$
    (a) Applying the definition of primitive.
    (b) Changing the function under the integral sign in the supplyside.
    (c) Changing variables, but do not change the limits of the integral.

Part B

Compulsory question $(1 \times 10 = 10$ Marks)

13. Out of a group of 50 teachers in a high school 30 teach Mathematics, 20 teach English and 25 teach Science. 10 teach both Mathematics and Science, and none teach Mathematics and English.
    (i) How Many teach Science and English.
    (ii) How many teach only English?