

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 EXAMINATIONS - NOV'2024

SEMESTER - III

**23UBHCT3013 - Business Mathematics**

Total Duration : 2 Hrs. 30 Mins.

Total Marks : 60

### Section B

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

1.  $n(A) = 20$ ,  $n(B) = 30$  and  $n(A \cup B) = 30$  then find  $n(A \cap B)$
2. A bag contains 1Re, 2Rs and 5Rs coin in the ratio 3:4:5. If there is Rs.288 in total. Find the number of 1Re coin.
3. Out of 7 consonants and 4 vowels how many words of 3 consonants and 2 vowels can be formed?
4. If XYZ Company has a total cost function represented by the equation  $Y = 2x^3 - 3x^2 + 12x$  where y represents cost and x represents quantities
  - i) What is the equation for Marginal Cost function?
  - ii) What is the equation for Average Cost function?
  - iii) At what point average cost is at its minimum?
5. The total profit Y in rupees of a drug company from the manufacture and sale of x drug bottles is given by  $Y = \frac{x^2}{400} + 2x - 80$ 
  - i) How many drug bottles must the company sell to achieve the maximum profit?
  - ii) What is the per drug bottle when this maximum is achieved?
6. How Many terms in the following arithmetic progression 7,13,19,.....,205.
7. 10% of x = 30% of y find x:y.
8. Find simple interest of Rs.5,000 for 3 years at 10% p.a.

### Section C

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

9. In a town 85% of people speak English, 40% speak Tamil, 20% speak Hindi. Also 32% speak English and Tamil, 13% speak Tamil and Hindi, 10% speak English and Hindi. Find the percentage of people who can speak all the three languages.

**Contd...**

10.  $2A:3B:4C$  find  $A:B:C$

11. If  $a$  and  $b$  are the  $1^{st}$  &  $20^{th}$  terms of a HP, write down the  $15^{th}$  &  $25^{th}$  terms.

12. The cost of fuel in running of an engine is proportional to the square of the speed and is ₹48 per hour for a speed of 16 kilometres per hour. Other expenses amount to ₹300 per hour. What is the most economical speed?

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

13. Find the value of  $x$  and  $y$  using linear equation model

$$2x - y = 4, 3x + 2y = 13$$

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