Vidya Vikas Mandal's
Shree Damodar College of Commerce & Economics, Margao-Goa
FY BBA, Term-II, End Term Assessment January 2023
BBCB029- Business Mathematics

Duration: 1hr 30 min   **Max Marks: 25**

Instructions:

1) Start each question on fresh page.
2) Figures to the right indicate maximum marks.
3) Non-scientific, non-programmable calculators are allowed

Q1. Answer <u>Any Five</u> of the following: [5x5=25 Marks]

A. Shree Damodar college of commerce & Economics library has a fixed charge for the first 10 days and an additional charge for each day thereafter. Sydon paid Rs.50 for a book kept for fourteen days, while Hayden paid Rs.83 for the book he kept for seventeen days. Find the fixed charge and the charge for each extra day.

B. Karma tea Estate began production in a new plant in Munnar last year, it produced 8000 cartons of tea, it is projected that production will increase by 50 cartons each year.
   a. Determine the production in the 7th and 10th year
   b. Determine whether the production will ever reach 32500 cartons of tea.

C. A cooperative society offers fixed deposits for 5 years under the following schemes:
   i. At 9%, if the interest is calculated half yearly.
   ii. At 11%, if the interest is calculated quarterly.
   State which scheme is more beneficial to the public.

D. For the purposes of a marketing survey a survey of 1000 women is conducted in a town. The results show that 52 % liked watching comedies, 45% liked watching fantasy movies and 60% liked watching romantic movies. In addition, 25% liked watching comedy and fantasy both, 28% liked watching romantic and fantasy both and 30% liked watching comedy and romantic movies both. 6% liked watching none of these movie genres.

   i.   How many women like watching all the three movie genres?
   ii. Find the number of women who like watching only one of the three genres.
   iii. Find the number of women who like watching at least two of the given genres.

E. From a group of 6 men and 4 women, a committee of 5 has to be formed. How many committees are possible if
   a. there are no restrictions
   b. 3 men and 2 women are to be selected
   c. at most 1 woman is to be selected

F. Solve the following system of equation using Cramer's rule:
   $3x+7y=4$ and $x+2y=1$

G. Evaluate the following:
   i. $\dfrac{5}{26} - \dfrac{7}{65}$
   ii. 103×97
   iii. $(2a-7)^2$

H. Write a short note on breakeven point and hence verify whether the following situation attains break even point:
   A company manufactures and sells a single product as follows:
   Selling price per unit = Rs 20, Variable cost per unit = Rs 10
   Total fixed cost = Rs 1,00,000
   The break-even sales to cover fixed costs will be 10,000 units.
   The company will have to sell 10,000 units to attain break even point.

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