

Vidya Vikas Mandal's
Shree Damodar College of Commerce & Economics, Margao-Goa
FY BVoc (ST), Semester-I, Semester End Examination November 2022
STG 103- Quantitative Techniques

Duration: 2 hrs**Max Marks: 40****Instructions:**

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

I Attempt any FOUR of the following [4x4=16Marks]

- a. Atharva scored 30 marks out of 50 marks and his elder brother Aryan scored 42 marks out of 50 marks. Compare and calculate who scored a better percentage.
- b. A dozen pairs of socks quoted at ₹ 80 are available at a discount of 10%. Calculate the number of pairs of socks can be bought for ₹24.
- c. A grocer wishes to sell a mixture of two variety of sugar worth Rs.16 per kg. Find the ratio in which he must mix the sugar to reach this selling price, when cost of one variety of sugar is Rs.14 per kg and the other is Rs.24 per kg.
- d. Contractor A can finish a job in 16 days and contractor B can do it in 12 days. With the help of contractor C, they completed the job in 4 days only. Then find in how many days contractor C alone can do it.
- e. Divide 576 in the ratio 2:3 and hence Find
 - i. fourth proportional of 5,8,15
 - ii. third proportional of 10,20,15
 - iii. mean proportional between 6 and 24
- f. The cost of an article was Rs15,500, Rs 450 were spent on its repairs. If it is sold for a profit of 15%, find the selling price of the article.

II Attempt the following

- A. The slant height of a cone is 5m and the diameter is 8m. Find **[6Marks]**
- i. its height
 - ii. Curved surface area
 - iii. Total surface area
 - iv. Volume

OR

- B. If $f(x) = x^2 - 1$ and $g(x) = \frac{2x}{x+1}$; Find: $f \circ g(x)$, $g \circ f(x)$, $f \circ f(x)$, $g \circ g(x)$, $f(3) + g(4)$ **[6 Marks]**

- C. If the 10th and 18th term of an Arithmetic Progression are 41 and 73 **[6 Marks]** respectively. Find the 27th term of the sequence. Also find sum of 27 terms of the sequence.

III. **Attempt the following**

- A. Dylan invested an amount of Rs 10000 in a fixed deposit scheme for 3 years at compound interest rate 4% p.a. How much amount will Dylan get on maturity of the FD if interest is calculated [6 Marks]
- annually
 - Semi annually
 - Quarterly

OR

- B. A thief is noticed by a policeman from a distance of 200 m. The thief starts running and the policeman chases him. The thief and the policeman run at the rate of 10 km and 11 km per hour respectively. Calculate the distance between them after 6 minutes. [6 Marks]
- C. Find whether the following vertices are of equilateral triangle, isosceles triangle or scalene triangle A(5, -3), B(1,7) and C(-3,1). Further find the area of the triangle formed [6 Marks]
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