

Vidya Vikas Mandal's
Shree Damodar College of Commerce & Economics, Margao-Goa
FY BVoc(ST), Semester-I, Semester End Examination November 2023
Subject: STG103-Quantitative Techniques

Duration: 1 Hr

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.

QI Attempt any four of the following.

4x4=16marks

- a. In a certain examination, the average marks of an examinee is 64 per paper. If he had obtained 18 more marks in his Mathematics paper and 4 more marks in his English paper, his average per paper would have been 66. How many papers were there in the examination?
- b. A and B can do a piece of work in 45 and 40 days respectively. They began to do the work together but A leaves after some days and then B completed the remaining work in 23 days. Find the number of days after which A left the work.
- c. Rice costing Rs. 7 per kg is mixed with rice costing Rs 6 per kg in the ratio 2:3. What is the mean price of the mixture?
- d. Two numbers are in the ratio 11:14. If 5 is subtracted from both the numbers the ratio becomes 2:3. Find the numbers.
- e. Calculate the amount after 2 years if Rs 1200 is compounded half yearly at 8% per annum.
- f. A shopkeeper earns a profit of 25% on selling a radio at 15% discount on the printed price. What is the ratio of the printed price to the cost price of the radio.

QII Attempt the following.

A. Find the domain and range of the following functions

6 marks

1) $f(x) = \frac{1}{x+4}$

2) $f(x) = \sqrt{1-x^2}$

3) $f(x) = x^2 + 1$

OR

B. The length, breadth and height of a rectangular box are in the ratio 1:2:3. Find the volume of the box if its total surface area is 1078 sq.cm. 6 marks

C. The sum of the first three terms of a G.P is $\frac{39}{10}$ and their product is 1. Find the first term and the common ratio. 6 marks

QIII. Attempt the following.

A. By selling an article for Rs.720, a man loses 10%. At what price should he sell it to gain 5%? 6 marks

OR

B. Sameer has Rs 4000. He lent a part of it at 8% and the rest at 5%. If the annual interest received by him was Rs. 290, find the money he lent at 8% and 5%. Both the interests are simple interests. 6 marks

C. Solve:

$$1) \frac{(2x-1)}{3} \geq \frac{(3x-2)}{4} - \frac{(2-x)}{5}$$

$$2) 3x^2 + 25x - 18 = 0$$

6 marks