Vidya Vikas Mandal's

Std : XII   Ramacrisna Madeva Salgaocar Higher Secondary School   Dur: 1 hr

Date : 08/08/2024   Margao – Goa   Marks : 20

First Formative Exam

Subject : MATHEMATICS AND STATISTICS

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1. All questions are compulsory.
2. The question paper consists of 8 questions.
3. Question Numbers 1-2 are multiple choice /VSA type questions of 1 mark each.
4. Question Numbers 3-4 are short answer type -I questions of 2 mark each.
5. Question Numbers 5-6 are short answer type -II questions of 3 mark each.
6. Question Numbers 7-8 are long answer type -1 questions of 4 mark each.
7. There is no overall choice in the paper. However internal choice is provided in 1 question of 4 marks .
8. Use of calculators is not permitted.

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1. The interest on true discount of the bill of exchange is - - - - - .

    (A)   Bankers Discount

    (B)   Face value

    (C)   Bankers Gain

    (D)   Present Value

2. Define Marginal Revenue.

3. If $x = t^3$, $y = t^2 + 2t$. Find $\frac{dy}{dx}$ at t =5 .

4. If $\cos y^2 + x = e^y$. Find $\frac{dy}{dx}$.

5. If $y = (1 + 2x)^{x^2} + 4^x$. Find $\frac{dy}{dx}$.

6. If a function f is continuous at x =0 , where

$$f(x) = \frac{e^{4x}-1}{\log(1+x)} + A \qquad , \quad x < 0$$

$$= 3\cos x - 1 \qquad , \quad x = 0$$

$$= \frac{\tan 2x}{\sin Bx} \qquad , \quad x > 0$$

Find the values of A and B.

7. If the Profit of a firm is given by $P(x) = 80x - \frac{x^2}{5} - 40$, where P is the Profit and x is the output. Find for what value of x, the profit will be maximized and the amount of maximum profit.

8. A bill of exchange was drawn on March 14 2020 for Rs 2,50,000 for six months and was discounted at a bank at 6% per annum for Rs 2,47,000. On what day was the bill discounted?

OR

Find the present value , true discount and Bankers discount on a bill of Rs 6,20,000 due 4 years hence at 6% per annum simple interest.

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