V40/A27021/EE/20160519

Time : 3 Hours **Marks : 80**

Instruction :

1. All Questions are Compulsory.
2. Each Sub-question carry 5 marks.
3. Each Sub-question should be answered between 75 to 100 words. Write every questions answer on separate page.
4. Question paper of 80 Marks, it will be converted in to your programme structure marks.

1. Solve any **four** sub-questions.

   a) Find the derivative of $\frac{\sin x}{10\cos x}$ with respect to x. 5

   b) Evaluate $\lim_{\theta \to 0} \frac{\sec 4x}{\sec 2x}$. 5

   c) Find the derivative of cot x with respect to from the first principle. 5

   d) Find the derivative of $(x^3 - 4)(x^2 + 2)$ with respect to x. 5

   e) Evaluate $\lim_{x \to 2} \frac{x^3 - 64}{x^3 - 8^-}$. 5

2. Solve any **four** sub-questions.

   a) Write the negation of the following statements: 5

      i) In equilateral triangle, its all angles are congruent

      ii) If a number is odd then it is a prime number

   b) Write the converse of the following statements : 5

      A rectangle is a square

   c) If the sum of the digits of a given number is a multiple of three then that given number is divisible by three. 5

   d) Combine the statements by using 'if' and 'only if'. 5

      i) A rectangle is a square

         Its four sides are congruent

      ii) The number is divisible by 9.

e) The sum of the digits is divisible by 9 correct the following statements if they are not true: 5

i) If a three digit number is prime then the number is odd

ii) a+ib is always a complex number.

3. Solve any **four** sub-questions.

a) Find the median. 5

xi	6	12	18	24	30
fi	3	8	11	7	4

b) Find the mean deviation about the mean from the following data. 5
5, 30, 40, 46, 16, 10, 20, 26, 36, 50.

c) Find the standard deviation of the following data. 5

Height in cms	100-104	105-109	110-114	115-119
No. of Students	8	7	14	11

d) The mean and variance of eight observations are 9 and 9.25 respectively. If the six observations are 6, 7, 10, 12, 12 and 13. Find the remaining two observations. 5

e) Find the mean deviation about the median of the following data. 5

xi	8	12	16	20	24
fi	2	3	5	8	12

4. Solve any **four** sub-questions.

a) A committee of two is selected from two men and three women. Find the probability that committee includes no man. 5

b) Given P(A) = 0.62 and P(B) = 0.32. Find P ($A' \cup B$) if P ($A \cup B$) = 0.8 5

c) An experiment consists of tossing a coin and then throwing it second time if a head occurs. If tail occurs on the first toss a die is rolled once. Find the sample space. 5

d) A committee of two is selected from 3 men and 5 women. Find the probability that the committee includes one man and one women. 5

e) Given P(A) = 0.7 and P(B) = 0.3. Find P(A or B) if P(A and B) = 0.01. 5

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