Sessional examination, 2022

B.A 1st semester

Paper - ECO-HC-1026

time - 1 hour

Mathematical methods in economics

Marks = 20

1. Answer the following questions. (Any six) $1 \times 6 = 6$

a) Define derivative.

b) Write the constant function rule of differentiation.

c) In what case we used the concept of total differentiation

d) Write the exponential rule of differentiation.

e) define single-ton set.

f) If $A = \{2, e, 5, 7, 9, b\}$ and $B = \{3, a, c, 5, 6, 7\}$, find $(A \cup B)$.

g) Find $\int x^5 dx$.

2. Write the following any two answers. $2 \times 2 = 4$

a) If $Y = \frac{-x^{12}}{6}$ find $\frac{dY}{dx}$.

b) If $Y = e^{ax}$ find $\frac{dY}{dx}$

c) Find limit, $\lim_{x \to 2} \frac{\sqrt{x^2-4}}{\sqrt{x-2}}$

3. Answer the following questions. $5 \times 2 = 10$

a) If $Y = (4x^2 - 3)^4$ find $\frac{dY}{dx}$ using chain rule.

b) The marginal cost function of a firm is given by

$$MC = C'(Q) = 6Q^2 - 24Q + 5$$

Find the value of Q at which the AVC is minimum.