

Que 6: Let  $f(x)=1+2x^2+2^2x^4+\dots+2^{10}x^{20}$ , then  $f(x)$  has

- A) More than one minimum
- B) Exactly one minimum
- C) At least one maximum
- D) None of these

Correct Answer: B

Solution :

$$\begin{aligned}f(x) &= 1 + 2x^2 + 2^2x^4 + 2^3x^6 + \dots + 2^{10}x^{20} \\ f'(x) &= x(4 + 4 \cdot 2x^2 + \dots + 20 \cdot 2^{10}x^{18}) \\ \therefore f'(x) &= 0 \quad x=0 \text{ only.} \\ \text{Also } f''(0) &> 0.\end{aligned}$$