

Q-1. If $A = \{3, 8\}$, $B = \{2, 9\}$, $C = \{8, 9\}$ then $B \times (A \cap C) =$ _____

- A. $\{(3,9), (8,9)\}$
- B. $\{(2,8), (2,9)\}$
- C. $\{(2,8), (9,8)\}$
- D. $\{(3,2), (8,9)\}$

Q-2. In Intersection of Sets, _____ is not true.

- A. $(A \cap B) \subseteq A$
- B. $B \subseteq (A \cap B)$
- C. $A \cap \emptyset = \emptyset$
- D. $A \cap B = B \cap A$

Q-3. In Union of sets, _____ is not true.

- A. $(A \cup B) \subseteq A$
- B. $B \subseteq (A \cup B)$
- C. $A \cup \emptyset = A$
- D. $(A \cup B) = (B \cup A)$

Q-4. $A \cup (B \cap C) =$ _____

- A. $(A \cap B) \cup (A \cap C)$
- B. $(A \cap B) \cap (A \cap C)$
- C. $(A \cup B) \cup (A \cup C)$
- D. $(A \cup B) \cap (A \cup C)$

Q-5. $A \cap (B \cup C) =$ _____

- A. $(A \cup B) \cup (A \cup C)$
- B. $(A \cup B) \cap (A \cup C)$
- C. $(A \cap B) \cup (A \cap C)$
- D. $(A \cap B) \cap (A \cap C)$

Q-6. In set theory, _____ is true.

- A. $Z \subset N$
- B. $Q \subset R$
- C. $R \subset Z$
- D. $C \subset R$

Q-7. In set theory, _____ is not true.

- A. $N \subset R$
- B. $R \subset C$
- C. $Z \subset Q$
- D. $Q \subset N$

Q-8. $(A \cup B)' =$ _____

- A. $A' \cap B'$
- B. $A' \cup B'$
- C. $A \cup B'$
- D. $A' \cap B$

Q-9. $(A \cap B)' =$ _____

- A. $A' \cap B'$
- B. $A' \cup B$
- C. $A \cap B'$
- D. $A' \cup B'$

Q-10. In set theory _____ is not true.

- A. $A - (A - B) = A \cap B$
- B. $B - (A - B) = A \cap B$
- C. $B - (B - A) = A \cap B$
- D. $A - B, A \cap B, B - A$ are mutually disjoint sets.

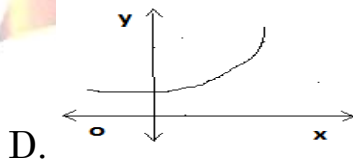
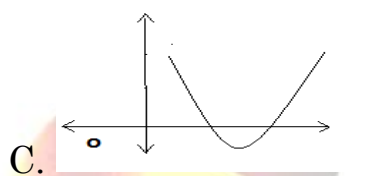
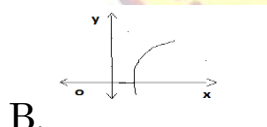
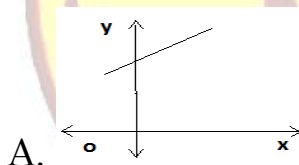
Q-11. _____ is not a type of function.

- A. One – One Function
- B. Many – One Function
- C. One – many Function
- D. Constant Function

Q-12. The Graph of _____ function is a parabola.

- A. Linear
- B. Quadratic
- C. Exponential
- D. Logarithmic

Q-13. $f : \mathbb{R} \rightarrow \mathbb{R}; f(x) = a^x, (a > 0 \text{ and } a \neq 1)$ and the graph of this function is as shown _____



Q-14. If $f(x) = x^2 - 2x$ then $f(1) - f(-1) =$ _____

- A. -2
- B. 2
- C. -4
- D. 4

Q-15. If $f: N \rightarrow N, f(n) = \frac{n^2(n+1)^2}{4}$, then $f(n-1) - f(n) =$ _____

- A. $-n^3/4$
- B. $-n^3$
- C. n^3
- D. $n^3/4$

Q-16. $\lim_{x \rightarrow 1} \frac{x^3-1}{x-1} =$ _____

- A. 3
- B. 1
- C. $\log 3$
- D. e^3

Q-17. $\lim_{x \rightarrow 2} \frac{x^5-32}{x-2} =$ _____

- A. 32
- B. 64
- C. 60
- D. 80

Q-18. $\lim_{h \rightarrow 0} \frac{2^h-1}{h} =$ _____

- A. e^2
- B. 2
- C. 1
- D. $\log_e 2$

Q-19. $\lim_{h \rightarrow 0} \frac{e^h-1}{h} =$ _____

- A. 1
- B. e
- C. $\log h$
- D. 0

Q-20. $\lim_{h \rightarrow \infty} \frac{\sum n}{n^2} = \underline{\hspace{2cm}}$

- A. 1
- B. 1/2
- C. 1/4
- D. 1/6

Q-21. If $f(x) = \frac{1}{\sqrt{x}}$ then $f'(x) = \underline{\hspace{2cm}}$

- A. $2\sqrt{x}$
- B. $1/2\sqrt{x^3}$
- C. $-1/2\sqrt{x^3}$
- D. $1/2\sqrt{x}$

Q-22. If $y = 3x^2 + 2x + 4$ then $f'(x) = \underline{\hspace{2cm}}$

- A. 6
- B. 12
- C. 8
- D. 9

Q-23. If $y = e^{\log x}$ then $\frac{dy}{dx} = \underline{\hspace{2cm}}$

- A. 1
- B. $\log X$
- C. $e^{\log X}$
- D. X

Q-24. If $y = \frac{2}{x^2}$ then $\frac{dy}{dx} = \underline{\hspace{2cm}}$

- A. $-1/x^3$
- B. $-4/x^3$
- C. $4/x^3$
- D. $1/x^3$

Q-25. If $f(x) = \sqrt{x}$ then $f'(x) =$ _____

- A. $2\sqrt{x}$
- B. $1/2\sqrt{x}$
- C. $2/\sqrt{x}$
- D. $1/\sqrt{x}$

Q-26. If $y = \log x$ then $\frac{dy}{dx} =$ _____

- A. X
- B. 1
- C. 0
- D. $\frac{1}{x}$

Q-27. _____ is not true.

- A. $\log 1 = 0$
- B. $\log_e = 1$
- C. $\log_x = 1/x$
- D. $X^{-1} = 1/x$

Q-28. If $f(x) = e^{x^2}$ then $f'(x) =$ _____

- A. X^2
- B. $2x$
- C. $1/x^2$
- D. $1/2x$

Q-29. If $y = e^x$, then the value of $f'(0) =$ _____

- A. 1
- B. X
- C. e
- D. 0

Q-30. If $y = \log(\log x)$, then $\frac{dy}{dx} =$ _____

- A. $\frac{1}{\log x}$
- B. $\frac{x}{\log x}$
- C. $\frac{1}{x \cdot \log x}$
- D. $\frac{\log x}{x}$

Q-31. _____ are necessary and sufficient conditions for a function of x to be maximum at $x=a$

- A. (i) $f'(a)=0$, (ii) $f''(a)>0$
- B. (i) $f'(a)=0$, (ii) $f''(a)<0$
- C. (i) $f'(a)>0$, (ii) $f''(a)=0$
- D. (i) $f'(a)<0$, (ii) $f''(a)=0$

Q-32. _____ are the necessary and sufficient condition for a function $f(x)$ to be minimum at $x=a$

- A. (i) $f'(a)=0$, (ii) $f''(a)<0$
- B. (i) $f'(a)>0$, (ii) $f''(a)=0$
- C. (i) $f'(a)=0$, (ii) $f''(a)>0$
- D. (i) $f'(a)<0$, (ii) $f''(a)=0$

Q-33. If $y = \log x^2$ then, $\frac{d^2y}{dx^2} =$ _____

- A. $\frac{1}{x}$
- B. $\frac{1}{2x}$
- C. $\frac{2}{x^2}$
- D. $-\frac{2}{x^2}$

Q-34. If $f(x) = e^{2x}$ then $f''(x) =$ _____

- A. $2 \cdot e^{2x}$
- B. $\frac{e^{2x}}{2}$
- C. $4e^{2x}$
- D. $\frac{e^{2x}}{4}$

Q-35. The relationship between marginal revenue, average revenue and elasticity of demand is _____

- A. $n = \frac{AR-MR}{AR}$
- B. $n = \frac{AR}{AR-MR}$
- C. $n = \frac{MR-AR}{MR}$
- D. $n = \frac{MR}{MR-AR}$

Q-36. If demand function is $x=f(p)$, then the Elasticity of demand (η) is _____

- A. $\eta = -\frac{P}{X} \cdot \left(\frac{dx}{dp}\right)$
- B. $\eta = \frac{P}{X} \cdot \left(\frac{dx}{dp}\right)$
- C. $\eta = -\frac{X}{P} \cdot \left(\frac{dp}{dx}\right)$
- D. $\eta = \frac{X}{P} \cdot \left(\frac{dp}{dx}\right)$

Q-37. If Supply function $x=f(p)$, then the Elasticity of Supply (ϵ) is _____

- A. $\epsilon = -\frac{p}{x} \cdot \left(\frac{dx}{dp}\right)$
- B. $\epsilon = \frac{p}{x} \cdot \left(\frac{dx}{dp}\right)$
- C. $\epsilon = -\frac{x}{p} \cdot \left(\frac{dp}{dx}\right)$
- D. $\epsilon = \frac{x}{p} \cdot \left(\frac{dp}{dx}\right)$

Q-38. If the demand function $p=f(x)$, then (MR) marginal Revenue is _____

- A. $MR = \frac{dp}{dx}$
- B. $MR = \frac{dx}{dp}$
- C. $MR = \frac{dR}{dx}$
- D. $MR = \frac{dx}{dR}$

Q-39. If the Supply function $C = f(x)$, then (MC) Marginal Cost is _____

- A. $MC = \frac{dx}{dc}$
- B. $MC = \frac{d^2X}{dc^2}$
- C. $MC = \frac{d^2C}{dX^2}$
- D. $MC = \frac{dc}{dx}$

Q-40. When elasticity of demand is greater than 1, demand is said to be _____

- A. Perfectly elastic
- B. Unitary elastic
- C. Relatively Inelastic
- D. Relatively elastic

Correct Answers:

1.	C	11.	C	21.	C	31.	B
2.	B	12.	B	22.	C	32.	C
3.	A	13.	D	23.	A	33.	D
4.	D	14.	C	24.	B	34.	C
5.	C	15.	B	25.	B	35.	B
6.	B	16.	A	26.	D	36.	A
7.	D	17.	D	27.	C	37.	B
8.	A	18.	D	28.	B	38.	C
9.	D	19.	A	29.	A	39.	D
10.	B	20.	B	30.	C	40.	D