

Subject- Maths

Unit-I

1) The total cost function is given by $C = x^2 + 5x + 3$, where x is the number of units manufactured. Then Total Cost when $x = 2$ is ____.

- a) 17 b) 14 c) 13 d) 2

2) The total cost function is given by $C = x^2 + 4x + 2$, where x is the number of units manufactured. Then Total Cost when $x = 3$ is ____.

- a) 23 b) 17 c) 14 d) 3

3) The total cost function is given by $C = x^2 + x + 4$, where x is the number of units manufactured. Then Total Cost when $x = 4$ is ____.

- a) 24 b) 12 c) 4 d) 16

4) The total cost function is given by $C = x^2 + 2x + 1$, where x is the number of units manufactured. Then Total Cost when $x = 3$ is ____.

- a) 16 b) 15 c) 3 d) 6

5) The demand function given by $D = 10 + 2p$. Then Total revenue when $p = 5$ is ____

- a) 20 b) 14 c) 5 d) 100

6) The demand function given by $D = 5 + 2p$. Then Total revenue when $p = 5$ is ____

- a) 35 b) 10 c) 15 d) 75

7) The demand function given by $D = 3 + 4p$. Then Total revenue when $p = 2$ is _____

- a) 11 b) 22 c) 10 d) 8

8) The demand function given by $D = 4 + 4p$. Then Total revenue when $p = 2$ is _____

- a) 12 b) 2 c) 24 d) 50

9) If $y = x^2 + \log x$ then $\frac{dy}{dx}$ is

- a) $2x + \frac{1}{x}$ b) $x + \frac{1}{x}$
c) $2 + \frac{1}{x}$ d) $2x + 1$

10) If $y = e^{3x} + 3^x + 2$ then $\frac{dy}{dx}$ is

- a) $3e^{3x} + 3^x + 2$ b) $3e^{3x} + \log 3 \cdot 3^x + 2$
c) $e^{3x} + \log 3 \cdot 3^x$ d) $3e^{3x} + \log 3 \cdot 3^x$

11) The total cost function is given by $C = x^2 + x + 2$, where x is the number of units manufactured. Then Marginal cost when $x = 1$ is _____

- a) 1 b) 3 c) 4 d) 2

12) The total cost function is given by $C = x^2 + 2x + 2$, where x is the number of units manufactured. Then Marginal cost when $x = 2$ is _____

- a) 2 b) 6 c) 10 d) 4

13) The total cost function is given by $C = x^2 + 4x + 5$, where x is the number of units manufactured. Then Marginal cost when $x = 10$ is _____

- a) 145 b) 45 c) 24 d) 10

14) The total cost function is given by $C = x^2 + 4x + 2$, where x is the number of units manufactured. Then Marginal cost when $x = 2$ is _____

- a) 10 b) 8 c) 12 d) 2

15) The demand function given by $D = 1 + 3p$. Then Marginal revenue when $p = 3$ is _____

- a) 10 b) 30 c) 19 d) 18

16) The demand function given by $D = 2 + p$. Then Marginal revenue when $p = 4$ is _____

- a) 10 b) 4 c) 24 d) 2

17) The demand function given by $D = 2 + 4p$. Then Marginal revenue when $p = 3$ is _____

- a) 14 b) 42 c) 26 d) 3

18) The demand function given by $D = 5 + 3p$. Then Marginal revenue when $p = 4$ is _____

- a) 29 b) 17 c) 68 d) 4

19) If $y = 2x^2 + \log x + 1$ then $\frac{dy}{dx}$ is

- a) $2 + \frac{1}{x}$ b) $x + \frac{1}{x} + 1$
c) $4x + \frac{1}{x}$ d) $2x + 1$

20) If $y = e^{2x} + 2^x$ then $\frac{dy}{dx}$ is

- a) $2e^{2x} + \log 2 \cdot 2^x$ b) $2e^{2x} + 2 \cdot 2^x$
c) $e^{2x} + \log 2 \cdot 2^x$ d) $2e^{2x} + 2^x$

21) The total cost function is given by $C = x^2 + 4x + 50$, where x is the number of units manufactured. Then Average Cost when $x = 10$ is _____

- a) 10 b) 190 c) 19 d) 50

22) The total cost function is given by $C = x^2 + 5x + 100$, where x is the number of units manufactured. Then Average Cost when $x = 5$ is _____

- a) 5 b) 150 c) 30 d) 100

23) The total cost function is given by $C = x^2 + 3x + 5$, where x is the number of units manufactured. Then Average Cost when $x = 5$ is _____

- a) 45 b) 9 c) 20 d) 5

24) The total cost function is given by $C = x^2 + 5x + 50$, where x is the number of units manufactured. Then Average Cost when $x = 10$ is _____

- a) 10 b) 200 c) 20 d) 50

25) The demand function given by $p = 2 + 2D + D^2$. Then average revenue when $D = 4$ is _____

- a) 26 b) 10 c) 104 d) 4

26) The demand function given by $p = 1 + 3D + 2D^2$. Then average revenue when $D = 3$ is _____

- a) 28 b) 10 c) 81 d) 3

27) The demand function given by $p = 2 + D + D^2$. Then average revenue when $D = 2$ is _____

- a) 16 b) 4 c) 2 d) 8

28) The demand function given by $p = 2 + D + D^2$. Then average revenue when $D = 5$ is _____

- a) 32 b) 12 c) 160 d) 5

29) If $y = x^3 + 2e^{-x} + 1$ then $\frac{dy}{dx}$ is

- a) $3x^2 - 2e^{-x}$ b) $x^2 - 2e^{-x}$
c) $3x^2 - e^{-x}$ d) $3x^2 + 2e^{-x}$

30) If $y = x + 3 \log x + 3$ then $\frac{dy}{dx}$ is

- a) $1 + \frac{3}{x}$ b) $x + \frac{3}{x}$
c) $1 + \frac{1}{x}$ d) 1

31)) If demand function is $D = 1 - p$. Then Price elasticity of demand when $p = 3$ is _____

- a) 1.5 b) -1.5 c) 2 d) -2

32) If demand function is $D = 3 - p$. Then Price elasticity of demand when $p = 2$ is _____

- a) 1 b) -1 c) 2 d) -2

33)) If demand function is $D = 3 - 2p$. Then Price elasticity of demand when $p = 2$ is _____

- a) -2 b) 2 c) 4 d) -4

34) If demand function is $D = -4 - p$. Then Price elasticity of demand when $p = 1$ is _____

- a) -0.2 b) 0.2 c) 5 d) -5

35) The Extreme value of function $f(x) = 1 - 2x + x^2$ is

a) $x = 1$ is minimum

b) $x = 1$ is maximum

c) $x = -1$ is minimum

b) $x = -1$ is maximum

36) The Extreme value of function $f(x) = 2 - 4x + x^2$ is

a) $x = 2$ is maximum

b) $x = 2$ is minimum

c) $x = -2$ is minimum

d) $x = -2$ is maximum

37) The Extreme value of function $f(x) = -2 - 8x - 2x^2$ is

a) $x = -2$ is minimum

b) $x = -2$ is maximum

c) $x = 2$ is minimum

d) $x = 2$ is maximum

38) The Extreme value of function $f(x) = 1 + 12x - 3x^2$ is

a) $x = 2$ is minimum

b) $x = 2$ is maximum

c) $x = -2$ is minimum

d) $x = -2$ is maximum

39) If $y = x^2 + 2e^{2x} + 1$ then $\frac{dy}{dx}$ is

a) $2x + 4e^{2x}$

b) $2x + e^{2x}$

c) $2x$

d) $x + 4e^{2x}$

40) If $y = 4^x + 2 \log x + x$ then $\frac{dy}{dx}$ is

a) $\log 4 \cdot 4^x + \frac{2}{x} + 1$

b) $4 \cdot 4^x + \frac{2}{x}$

c) $4^x + \frac{2}{x} + 1$

d) $\log 4 \cdot 4^x + 1$

Choose correct alternative in each of the following

(20)

If P is the principal, N is the number of years at the rate of interest R% per annum then the simple interest is given by :

(a) $I = \text{PNR}/100$

(b) $I = \text{PNR}/1000$

(c) $I = \text{PNR}/200$

(d) $I = \text{PNR}/10$

- 2 The simple interest on principal 1500/- at 5% per annum for 3 years is :
 (a) Rs. 225 (b) Rs. 250
 (c) Rs. 450 (d) Rs. 25
- 3 The principal that will earn Rs. 4000 as simple interest in 8 years at 5% per annum is :
 (a) Rs. 10000 (b) Rs. 1000
 (c) Rs. 20000 (d) Rs. 30000
- 4 A sum of Rs. 3800 amounts to Rs. 4370 at the simple interest of 5% per annum in :
 (a) 2 years (b) 3 years
 (c) 4 years (d) 1 year
- 5 What should be the rate of interest so that a sum invested today will double itself in 15 years with respect to the simple interest?
 (a) $R = 6\%$ per annum. (b) $R = 6.67\%$ per annum.
 (c) $R = 7\%$ per annum. (d) $R = 7.67\%$ per annum.
- 6 The compound interest of Rs. 10,000 at interest rate 5% per annum for 3 years will be :
 (a) Rs. 2576.30 (b) Rs. 1576.30
 (c) Rs. 1676.30 (d) Rs. 1776.30
- 7 The difference of compound interest and simple interest for 3 years at 9% per annum on certain sums is Rs.60. Then the present value of a sum is :
 (a) Rs. 3397.12 (b) Rs. 4397.12
 (c) Rs. 2397.12 (d) Rs. 5397.12
- 8 If P is the principal amount, n denotes number of years, R = rate of interest per annum, $I = R/100$, then compound interest will be :
 (a) $C.I. = P[(1 + I)^n - 2]$ (b) $C.I. = P[(1 + I)^n - 3]$
 (c) $C.I. = P[(1 + I)^n - 1]$ (d) $C.I. = P[(1 + I)^n - 4]$
- 9 If P is the principal amount, n denotes number of years, R = rate of interest per annum, $I = R/100$, then the formula of total amount, calculated quarterly (based on compound interest) will be :
 (a) $A = P(1 + I/4)^{2n}$ (b) $A = P(1 + I/4)^{3n}$
 (c) $A = P(1 + I/4)^n$ (d) $A = P(1 + I/4)^{4n}$
- 10 A sum of Rs. 9000 is invested today. The compound interest, after 2 years if interest at rate of 12% per annum is compounded quarterly will be:
 (a) Rs. 2500.93 (b) Rs. 2600.93
 (c) Rs. 2400.93 (d) Rs. 3 400.93
- 11 The effective rate of interest corresponding to a nominal rate of 10% per annum compounded semi- annually is----
 (a) 10.25 (b) 12.5
 (c) 15.20 (d) 10.52

- 12 The effective rate of interest equivalent to a nominal rate of 8% per annum compounded quarterly is approximately-----
- (a) 5% (b) 8.24 %
(c) 8.16 % (d) 9.28 %
- 13 The amount at the end of 1 year of an annuity of Rs. 4000/- payable quarterly, @ rate of 12%per annum is ----
- (a) Rs. 16,374.84 (b) Rs. 17,374.84
(c) Rs. 16,734.68 (d) Rs. 18,374.84
- 14 The formula to find present value of annuity regular, where A is annuity is ----
- (a) $A [(1+i)^n - 1 / i(1+i)^n]$ (b) $A [(1+i)^n - 1 / (1+i)^n]$
(c) $A [(1+i)^n - 1 / i(1+i)^{2n}]$ (d) $A [(1+i)^n - 1 / i(1+i)^{3n}]$
- 15 The Equated Monthly Installment (EMI) on a loan of Rs. 1,20,000 for a period of 8 months at a rate of 12% per annum by the flat rate of interest method is ---
- (a) Rs. 16,400 (b) Rs. 16,800
(c) Rs. 16,200 (d) Rs. 17,200
- 16 A person has taken a loan of Rs. 40,000 at the rate of 10% per month. The person repays loan using the flat interest rate method in 4 months, then the EMI is ----
- (a) Rs. 20,000 (b) Rs. 10,000
(c) Rs. 14,000 (d) Rs. 20,00
- 17 A person has taken a loan of Rs. 4,00,000 from a bank at 10% rate of interest per annum for a term of 4 years. Then the nearest EMI is ----
- (a) Rs. 1,26,188 (b) Rs. 1,28,188
(c) Rs. 1,26,100 (d) Rs. 2,26,188
- 18 EMI stands for :
- (a) equal monthly instalments (b) equated monitor instalments
(c) equated money instalments (d) equated monthly instalments
- 19 If the principal is Rs. P and $i = R/100$, then the Accumulated value (A) or future value at the end of n years will be:
- (a) $A = P(1+i)^n$ (b) $A = P(1+i)^{2n}$
(c) $A = nP(1+i)^n$ (d) $A = 2P(1+i)^n$

- 20 Rahul deposited Rs. 5000 in a bank for 2 years at 7% per annum compound interest. Then the future value at the end of 2 years will be:
- (a) Rs.4742.5 (b) Rs.5742.5
(c) Rs.6742.5 (d) Rs.7742.5
- 21 Rahul deposited Rs. 3500 in a bank for 4 years at 8% per annum compound interest. Then the future value at the end of 2 years will be:
- (a) Rs.2742.80 (b) Rs.5742.5

- (c) Rs.3742.5 (d) Rs.4761.72
- 22 Rahul deposited Rs. 7500 in a bank for 4 years at 7% per annum compound interest. Then the future value at the end of 3 years will be:
 (a) Rs. 6187.80 (b) Rs. 7187.80
 (c) Rs. 9187.80 (d) Rs. 8187.80
- 23 PVAR stands for:
 (a) present value of annuity regular (b) past value of annuity regular
 (c) future value of annuity regular (d) present value of monthly regular
- 24 If A is annual instalment, $i = R/100$, n = number of years, R = rate of interest compounded, then present value of annuity regular (PVAR) is :
 (a) $PVAR = A[(1 + i)^n - 1 / i(1 + i)^n]$ (b) $PVAR = A[(1 + i)^n + 1 / i(1 + i)^n]$
 (c) $PVAR = A[(1 + i)^n / i(1 + i)^n]$ (d) $PVAR = A[(1 + i)^n - 1 / (1 + i)^n]$
- 25 Amar buys a computer worth Rs.58,000 on instalment. He pays Rs. 8,000 at the time of purchase and balance in 4 years with 8% per annum compound interest. Then the annual instalment will be :
 (a) Rs. 5096 approximately (b) Rs. 18096 approximately
 (c) Rs. 25096 approximately (d) Rs. 15096 approximately
- 26 The accumulated value at the end of 4 years of an ordinary annuity of Rs. 1500 per annum, if the interest rate is 9% per annum compounded annually will be:
 (a) $PVAR(4, 0.09) = Rs.6,859.67$ (b) $PVAR(4, 0.09) = Rs.859.67$
 (c) $PVAR(4, 0.09) = Rs.5,859.67$ (d) $PVAR(4, 0.09) = Rs.2,859.67$
- 27 An annuity is a series of payments made at---
 (a) equal intervals (b) unequal intervals
 (c) one year only (d) five years only
- 28 If P = value of each payment, r = interest rate per period, n = number of periods and PV = present value of an ordinary annuity, then
 (a) $PV = Px 1 + (1 + r)^{-n} / r$ (b) $PV = Px 1 - (1 + r)^{-n} / r$
 (c) $PV = Px (1 + r)^{-n} / r$ (d) $PV = Px 1 - (1 + r)^{-n}$
- 29 Ramesh takes a loan of Rs. 2,50,000 from a friend at 10% per annum flat rate of interest for a period of 4 years. Then the EMI will be:
 (a) Rs. 8,292 (b) Rs. 4,292
 (c) Rs. 5,292 (d) Rs. 7,292
- 30 Rs. 2,560 is invested in a term deposit scheme for 3 years at 6% per annum at compounded interest. Then the compound interest will be :
 (a) Rs. 389.01 (b) Rs. 489.01
 (c) Rs. 589.01 (d) Rs. 689.01

- 31 A person borrowed Rs. 10,000 at 12% per annum. If he is supposed to return the money within 2 years, then his EMI, using interest on reducing balance method is ---
(a) Rs. 370.7352 (b) Rs. 470.7352
(c) Rs. 570.7352 (d) Rs. 670.7352
- 32 A person borrowed Rs. 10,000 at 12% per annum. If he is supposed to return the money within 2 years, then his EMI, using flat interest rate method is ---
(a) Rs. 516.666 (b) Rs. 470.7352
(c) Rs. 670.7352 (d) Rs. 870.7352
- 33 A person borrowed Rs. 100 at 6% per annum. If he is supposed to return the money within 1 year, then his EMI, using flat interest rate method is ---
(a) Rs. 5.6066 (b) Rs. 9.6066
(c) Rs. 8.8333 (d) Rs. 10.6066
- 34 A person borrowed Rs. 100 at 6% per annum. If he is supposed to return the money within 1 year, then his EMI, using interest on reducing balance method is ---
(a) Rs. 10.8333 (b) Rs. 18.20
(c) Rs. 8.6066 (d) Rs. 28.8333
- 35 A person borrowed Rs. 5000 at 10% per annum. If he is supposed to return the money within 2 years, then his EMI, using interest on reducing balance method is ---
(a) Rs. 330.7246 (b) Rs. 430.7246
(c) Rs. 530.7246 (d) Rs. 230.7246
- 36 A person borrowed Rs. 5000 at 10% per annum. If he is supposed to return the money within 2 years, then his EMI, using flat interest rate method is ---
(a) Rs. 250 (b) Rs. 150
(c) Rs. 350 (d) Rs. 450
- 37 A person borrowed Rs. 75,000 at 12% per annum. If he is supposed to return the money within 1 year, then his EMI, using flat interest rate method is ---
(a) Rs. 6660 (b) Rs. 6650
(c) Rs. 5550 (d) Rs. 7000
- 38 A person borrowed Rs. 75000 at 12% per annum. If he is supposed to return the money within 1 year, then his EMI, using reducing balance rate method is ---
(a) Rs. 6663.659 (b) Rs. 660
(c) Rs. 7660 (d) Rs. 5660.50
- 39 the present value of an ordinary annuity of Rs. 1,500 per half year for 4 years at 8% to be calculated half yearly is---
(a) Rs. 10099.12 (b) Rs. 7660.60
(c) Rs. 2660.567 (d) Rs. 36605.90
- 40 the present value of an ordinary annuity of Rs. 3,500 per year for 3 years at 12% per annum is---
(a) Rs. 8859.53 (b) Rs. 8559.53
(c) Rs. 9559.53 (d) Rs. 10559.53

- 41 A person has taken a loan of Rs. 4,00,000 from a bank at 10% rate of interest per annum for a term of 4 years. Then the nearest EMI is ----
- | | |
|------------------|------------------|
| (a) Rs. 1,26,188 | (b) Rs. 1,28,188 |
| (c) Rs. 1,26,100 | (d) Rs. 2,26,188 |