Answer the following questions:

choose the correct answer:

Q1:

(1) slop of the tangent line for the function $f(x) = e^{x^2} + 2x + 10$ at $x = 0$ equals...............

  a) $\frac{2}{3}$ b) 5   c) 2x   d) other answer.

(2) the real values for solving of the given equation $x^3 + x^2 - x - 1 = 0$ equals......

  a) 1 or -1   b) 1 or 2 or -1   c) 1 or 3 or -1   d) other answer.

(3) The linear equation which passes through two given points (1, 3) and (2, 4) is:

  a) $y = x + 1$.   (b) $y = x - 1$.   (c) $y = x + 2$.   d) other answer.

(4) The real values of a quadratic equation are equality, if $(b^2 - 4ac)$

  a) < 0.   (b) > 0.   (c) $= 0$.   d) other answer.

(5) The general form for the given equation $y - 2x + 1 = 0$ is:

  a) $y = x + 1$.   (b) $x = 2y + 1$.   (c) $y = 2x - 1$.   d) other answer.

(6) The point which it lies on the curve for the equation $y = 2x^2 - 4$ is:

  a) (1, -3).   (b) (2, 3).   (c) (3, 12).   d) other answer.

(7) The quadratic equation has a two real values, if $(b^2 - 4ac)$ is:

  a) > 0.   (b) < 0.   (c) $= 0$.   d) other answer.

(8) The real values of a quadratic equation are not equality, if $(b^2 - 4ac)$

  a) < 0.   (b) > 0.   (c) $= 0$.   d) other answer.

(9) The linear equation which it passes through two given points (1, 3) and (3, 4) is:

  a) $y = x + 1$.   (b) $y = x - 1$.   (c) $2y - x - 5 = 0$.   d) other answer.

(10) if $\sqrt{x} = y^2 + 4$, then:

  a) y is function of x   (b) x is function of y   (c) function from two sides   d) other answer.

(11) if $\sqrt[3]{x} = y^3 + 4$, then:

  a) function from two sides   (b) y is function of x   (c) x is function of y   d) other answer.

(12) if $\sqrt[5]{x} = y^2 + 4$, then:

  a) function from two sides   (b) y is function of x   (c) x is function of y   d) other answer.

Q2:

The variable cost of producing q units equal $(q^2 + 20q)$, the fixed cost is 10000$, and the selling price of the unit $p = 1000 - q$. assume that the number of units produced = number of units sold, therefore:

(13) the total cost function C is...............

  a) $C = q^2 + 20q + 10000$ (b) $C = q^2 + 20q$ (c) $C = 20q + 10000$ d) other answer.

(14) the variable cost for producing 100 units equals............

  a) 20000$ (b) 12000$ (c) 22000   d) other answer.

(15) the total revenue R is:

  a) $R = 1000 - q^2$ (b) $R = 1000q - q$ (c) $R = 1000q - q^2$ d) other answer.

(16) number of units produced which makes total Revenue equals 240000$

  a) 400 or 600 units   (b) 500 units   (c) 450 units   d) other answer.

(17) number of units produced which makes total Revenue is maximum value:

  a) 400 units   (b) 500 units   (c) 450 units   d) other answer.

(18) the total profit function F is ....

  a) $F = -q^2 + 800q$ (b) $F = -2q^2 + 980q - 10000$

  (c) $F = -q^2 + 1000q - 10000$ d) other answer.

(19) The number of units produced which makes total profit is maximum value:

  a) 245 units   (b) 500 units   (c) 250 units   d) other answer.

(20) the maximum profit equals....

  a) 110045$ (b) 110050$ (c) 60000$ d) other answer.

(21) when number of units produced equals 10 units, then the marginal cost equals...........

    a) 50$ (b) 45 $ (c) 40$ d) other answer.

(22) when the level of production changes from 10 units to 20 units, then the change in total cost equals......

    a) 500$ (b) 450$ (c) 480$ d) other answer.

(23) when the level of production changes from 10 units to 20 units, then the change in variable cost equals........

    a) 1250$ (b) 1210$ (c) 1200$ d) other answer.

(24) if fixed cost equals 116000$, then break-even point is.............

    a) 200 or 300 units   (b) 200 or 290 units   (c) 200 or 280 units   d) other answer.

(25) The change in total profit when the size of production increases from 100 units to 200 units:

    a) 38000$ (b) 37000$ (c) 36000$ d) other answer.

Q3:

If C' is the marginal cost function for producing q units, where $C' = 4q + 10$ and selling price of the unit is $p = 40 - q$. assume that number of units produced = number of units sold, and the fixed cost Is k$, therefore:

(26) the variable cost is:

    a) $2q + 10q^2$ (b) $2q^2 + 10q + k$ (c) $2q^2 + 10q$ d) other answer.

(27) Change in total cost when size of production increases from 100 units to 200 units:

    a) 61000$ (b) 60000$ (c) 62000$ d) other answer.

(28) The change in the total profit when the volume of production increases from 2 units to 4 units:

    a) 6$ (b) 18$ (c) 44$ d) other answer.

(29) If the fixed cost k equals 40$, then the value of the average cost when producing 10 units is:

    a) 32$ (b) 30$ (c) 34$ d) other answer.

Q4:

(30) Solving the given inequality $x^2 - 5x + 6 \leq 0$ is:

    a) $2 \leq x \leq 3$.   (b) $x \leq 2$ (c) $x \leq 3$ d) other answer.

(31) if $|A| = \begin{vmatrix} 3 & 0 & 0 \\ x+1 & x+2 & 2 \\ 4 & 2 & 4 \end{vmatrix}$, then value of x which makes $|A| = 24$.

    a) -3   b) -2   c) 1   d) other answer.

(32) if $\begin{vmatrix} x & 1 \\ x & x \end{vmatrix} = 6$, then the value of x equals......

    a) -3 or 2   b) -2 or 3   c) 3 or 2   d) other answer.

(33) The equilibrium points for the demand equation $q = 10 - 2p$ and the supply $q = 1 + p$ is:

    a) {q = 3 and p = 4}.   (b) {q = 3 and p = 3}.   (c) {q = 4 and p = 3}.   d) other answer.

(34) if $\Delta = \begin{vmatrix} 4 & 5 \\ 3 & 2 \end{vmatrix}$ and $\Delta x = \begin{vmatrix} 140 & 5 \\ 70 & 2 \end{vmatrix}$, then value of y by using determinant method equals......

    a) -20   b) 40   c) 30   d) other answer.

(35) find equation of the tangent line to the function $f(x) = x^3 + 3x + 1$ at the point $x = 1$.

    a) $y = 6x + 2$ b) $y = 6x + 1$ c) $y = 4x - 3$ d) other answer.

(36) the first derivative of $f(x) = e^{x^2}$ is ....

    a) $2xe^{x^2}$ b) e^{x^2} c) xe^{x^2} d) other answer.

Finish of the exam

My best wishes