VIVEK TUTORIALS

Practice Test   [MODEL ANSWER]

Std: SSC (E.M)	Subject: Mathematics I	Time: 30Min
Date : 21/Apr/2019	**chapter 2**	Max Marks: 20

Q.1   **Choose the correct alternative answer for each of the following questions:**   **4**

1) Ans.

$$\frac{5}{x} = x^2 + 3$$

$5 = x(x^2+3)$ has only variable x but maximum index is 3, so it is nit quadratic

$x(x+5)=2$ has only variable x and maximum index is 2, so it is quadratic.

$n-1=2n$ has only variable n, but maximum index is 1, so it is not quadratic.

$$\frac{1}{x^2}(x+2)=x$$

$x+2=x^3$ has only variable x but maximum index is 3 so it is not quadratic. Option (B) is correct

2) Ans. As the roots of the equation $x^2+kx+k=0$ are real and equal.

$\therefore \Delta = b^2 - 4ac = 0$

Here, a=1, b=k, c=k

$b^2-4ac = (k)^2-4(1)(k)$

$0 = k^2-4k$

$k(k-4)=0$

$k=0$ or $k=4$

(C) is correct option

3) Ans. Option (A) is correct as

$x^2+4x=11+x^2$

$x^2 - x^2+4x-11=0$

$0\ x^2+4x-11=0$

Here, a=0

But for a quadratic equation $ax^2+bx+c=0$

$a \neq 0$

4) Ans. (b)

$x^2 + 2\sqrt{x} - 3 = 0$ is the only equation in which x has ½ as exponent whereas a quadratic equation must have maximum power as 2. Therefore $x + 2\sqrt{x} - 3 = 0$ is not a quadratic equation.

Q.2   **Complete the following Activities**   **4**

1) Ans. In the equation $9y^2 + 5 = 0$ $\boxed{y}$ is the only variable and maximum index of the variable is $\boxed{2}$

$\therefore$ It $\boxed{\text{is}}$ a quadratic equation.

2) Ans. In the equation $m^3 - 5m^2 + 4 = 0$ $\boxed{m}$ is the only variable but maximum index of the variable is not 2.

$\therefore$ It $\boxed{\text{is not}}$ a quadratic equation.

Q.3   **Solve the following questions**   **6**

1) Ans. In the equation $3x^2 - 5x + 3 = 0$, x is the only variable and maximum index of the variable is 2

∴ It is a quadratic equation.

2) Ans. (i) Put $x = \dfrac{3}{2}$ in the polynomial $2x^2 - 7x + 6$

$$2x^2 - 7x + 6 = 2\left(\dfrac{3}{2}\right)^2 - 7\left(\dfrac{3}{2}\right) + 6$$

$$= 2 \times \dfrac{9}{4} - \dfrac{21}{2} + 6$$

$$= \dfrac{9}{2} - \dfrac{21}{2} + \dfrac{12}{2} = 0$$

∴ $x = \dfrac{3}{2}$ is a solution of the equation.

(ii) Let $x = -2$ in $2x^2 - 7x + 6$

$$2x^2 - 7x + 6 = 2(-2)^2 - 7(-2) + 6$$

$$= 2 \times 4 + 14 + 6$$

$$= 28 \neq 0$$

∴ $x = -2$ is not a solution of the equation.

3) Ans. $3m^2 = 2m^2 - 9$

$\rightarrow 3m^2 - 2m^2 + 9 = 0$

$\rightarrow m^2 + 0m + 9 = 0$

Comparing with the standard equation $ax^2 + bx + c = 0$

$a = 1, b = 0, c = 9$

Q.4   Solve the following questions   6

1) Ans. $x^2 + 5x = -(3 - x)$

$\rightarrow x^2 + 5x = -3 + x$

$\rightarrow x^2 + 5x + 3 - x = 0$

$\rightarrow x^2 + 4x + 3 = 0$

Comparing with standard equation $ax^2 + bx + c = 0$

$a = 1, b = 4, c = 3$

2) Ans. $6\sqrt{3}\,x^2 + 7x = \sqrt{3}$

∴ $6\sqrt{3}\,x^2 + 7x - \sqrt{3} = 0$

∴ $6\sqrt{3}\,x^2 + 9x - 2x - \sqrt{3} = 0$

∴ $3\sqrt{3}\,x(2x + \sqrt{3}) - 1(2x + \sqrt{3}) = 0$

∴ $(2x + \sqrt{3})(3\sqrt{3}\,x - 1) = 0$

∴ $2x + \sqrt{3} = 0$ or $3\sqrt{3}\,x - 1 = 0$

∴ $2x = -\sqrt{3}$ or $3\sqrt{3}\,x = 1$

∴ $x = -\dfrac{\sqrt{3}}{2}$ or $x = \dfrac{1}{3\sqrt{3}}$

∴ $-\dfrac{\sqrt{3}}{2}$ and $\dfrac{1}{3\sqrt{3}}$ are the roots of the given quadratic equation.

$6\sqrt{3} \times -\sqrt{3} = -18$

-18

$9 \quad -2$

$9 = 3\sqrt{3} \times \sqrt{3}$