

VIVEK TUTORIALS

Practice Test

Std: SSC (E.M) Date : 23/Dec/2019 Time: 45Min Max Marks: 20

Q.1 Choose the correct alternative:

Q.2(A) Complete the following activities:(Any ONE)

(1) Solve the following quadratic equation by completing the square method: $2y^2 + 9y + 10 = 0$ First divide the equation by 2 so that coefficient of y^2 becomes 1.

$$\rightarrow \frac{2}{2} y^2 + \frac{9}{2} y + \boxed{=} \frac{9}{2} = \frac{9}{2}$$
$$\rightarrow y^2 + \frac{9}{2} y + 5 = 0$$

To solve the quadratic equation $y^2 + \frac{9}{2}y + \frac{9}$

5 = 0 by method of completing square, add and subtract square of the half of coefficient of 'y'

Added/ Subtracted value= $\left(\frac{1}{2} \times \frac{9}{2}\right)$

$$\therefore y^2 + \frac{9}{2}y + \left(\frac{9}{4}\right)^2 \cdot \left(\frac{9}{4}\right)^2 + 5 = 0$$

$$\rightarrow y^2 + \left[\left(\frac{9}{4} \right) + \left(\frac{9}{4} \right)^2 = - \left(\frac{9}{4} \right)^2 - 5$$

$$\rightarrow (y + \frac{9}{4})^2 = \boxed{-5}$$

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$$\rightarrow (y + \frac{9}{4})^2 = \left(\frac{1}{4}\right)^2$$

Taking square roots

 $\rightarrow y + \frac{9}{4} = \frac{1}{4} \text{ or } y + \frac{9}{4} = -\frac{1}{4}$ $\rightarrow y = \frac{1}{4} - \frac{9}{4} \text{ or } y = -\frac{1}{4} - \frac{9}{4}$ $\rightarrow y = \frac{-8}{4} \text{ or } y = \frac{-10}{4}$ $\rightarrow y = -2 \text{ or } y = \frac{-5}{2}$ $\therefore -2 \text{ and } \frac{-5}{2} \text{ are roots of the quadratic equation}$

(2) Solve the following quadratic equation by factorisation: $5m^2 = 22 m + 15$

$$5m^{2} = 22m + 15 = 0$$

$$\rightarrow 5m^{2} - 22m - 15 = 0$$

$$\rightarrow 5m^{2} - 22m - 15 = 0$$

$$\rightarrow 5m(m - 5) + 3(m - 5) = 0$$

$$\rightarrow (m - 5)(5m + 3) = 0$$

$$\rightarrow m - 5 = 0 \text{ or } 5m + 3 = 0$$

$$\rightarrow m = 5 \text{ or } m =$$

$$\therefore -5 \text{ and} \qquad \text{are the roots of the equation } 5m^{2} - 22m + 5 = 0$$

(B) Solve the following: (Any TWO)

- (1) How many possibilities are there in each of the following: Any day of a week is to be selected randomly.
- (2) Determine whether the values given against each of the quadratic equation are the roots of the equation:

$$2m^2 - 5m = 0$$
, $m = 2$, $\frac{5}{2}$

- (3) For each of the following experiments write sample space 'S' and number of sample points n(S).(1) One coin and one die are thrown simultaneously.
 - (2) Two digit numbers are formed using digits 2, 3 and 5 without repeating a digits.

Q.3 Solve the following: (Any TWO)

- (1) Solve quadratic equations using formula: $m^2 - 14 m + 13 = 0$
- (2) If x = 5 is a root of equation $kx^2 14x 5 = 0$ then find the value of k.
- (3) Solve the following quadratic equation by completing the square method: $x^2 + 2x 5 = 0$

Q.4 Solve the following: (Any ONE)

(1) A box contains 30 tickets, bearing only one number from 1 to 30 on each. If one ticket is drawn at

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random, find the probability of an event that the ticket drawn bears (1) an odd number (2) a complete square number.

(2) Find quadratic equation such that its roots are square of sum of the roots and square of difference of the roots of equation $2x^2 + 2(p+q)x + p^2 + q^2 = 0$

----- All the Best ------