

Time allowed: 1½ Hours

OBJECTIVES

Answer all questions

- Solve $\sqrt{y+3} = 3 - \sqrt{y}$
 - 1
 - 2
 - 3
 - 4
 - 5
- Find the inverse element of the set S under the operation Δ defined by $a\Delta b = 2ab$, for all $a, b \in S$.
 - $\frac{1}{2}$
 - $\frac{1}{4}$
 - $\frac{1}{4a}$
 - $\frac{1}{8a}$
 - 0
- Convert $(\frac{21012}{10000})_{\text{three}}$ to base ten.
 - $\frac{32}{81}$
 - $\frac{40}{81}$
 - $2\frac{32}{81}$
 - $6\frac{32}{81}$
 - $6\frac{56}{81}$
- Find the distance between the points A(10, 3) and B (7,4)
 - $\sqrt{7}$
 - $\sqrt{10}$
 - $\sqrt{58}$
 - 7
 - 10
- If the 2nd term of a Geometric Progression (G.P.) is 6 and the 4th term is 54, find the nth term.
 - 2×3^{2n}
 - $2 \times 3^{n-1}$
 - $2 \times 3^{2n-3}$
 - 3^{2n-2}
 - 3^{2n-3}
- Find the identity element of the set S under the operation * defined by $a*b = a + b + ab$, for all $a, b \in S$
 - 1
 - $-\frac{1}{2}$
 - 0
 - $\frac{1}{2}$
 - 1
- Resolve $\frac{5x-2}{(x-2)(2x+1)}$ into partial fractions.
 - $\frac{5}{(x-2)} - \frac{2}{(2x+1)}$
 - $\frac{5}{(x-2)} + \frac{2}{(2x+1)}$

- $\frac{9}{5(x-2)} + \frac{8}{5(2x+1)}$
 - $\frac{8}{5(x-2)} + \frac{9}{5(2x+1)}$
 - $\frac{8}{5(x-2)} - \frac{9}{5(2x+1)}$
- Solve the equation:
 $2^{2y} - 8 = -2^{y+1}$.
 - 2
 - 1
 - 0
 - 1
 - 2
 - When $pm^2 + qm - 1$ is divided by $(m-1)$, the remainder is 6, but when divided by $(m+1)$, there is no remainder. Find p and q respectively.
 - 6 and 6
 - 1 and -1
 - 1 and 5
 - 4 and 3
 - 5 and 2
 - A particle of mass 2.5kg is projected vertically upward with an initial velocity of 8ms^{-1} from the ground. Calculate its potential energy. (Take $g = 10\text{ms}^{-2}$).
 - 32.00J
 - 40.40J
 - 64.00J
 - 78.40J
 - 80.00J
 - Find the magnitude of the resultant of two forces 30N and 50N inclined at an angle of 60° to each other.
 - 80N
 - 70N
 - 50N
 - 30N
 - 20N
 - The table below shows the age distribution of employees in an organization.

Age (years)	30-39	40-49	50-59	60-69
No of employees	12	20	10	8

Calculate the modal age

- 45.9
- 45.1
- 43.9
- 39.7
- 39.5