I. *Four* alternatives are given for each of the following questions / incomplete statements. Only one of them is correct or most appropriate. Choose the correct alternative and write the complete answer along with its letter of alphabet.

$8 \times 1 = 8$

1. If a polynomial $p(x) = x^2 - 4$ is divided by a linear polynomial $(x - 2)$ then the remainder is

   (A)   2   (B) -2

   (C)   0   (D) -8.

2. The sum and product of the roots of the equation $x^2 + 2x + 1 = 0$ are respectively,

   (A)   2 and -1

   (B) -2 and 1

   (C) -2 and -1

   (D)   1 and 2.

3. In a circle the angle between a radius and a tangent at non-centre end of the radius is

   (A)   90°

   (B)   180°

   (C)   45°

   (D)   360°.

4. The volume of a right circular cylinder whose circular base area is 154 sq.cm and height 10 cm is

(A) 15·40 c.c.

(B) 15400 c.c.

(C) 1·540 c.c.

(D) 1540 c.c.

5. If $\tan \theta = \dfrac{1}{\sqrt{3}}$ and $\cos \theta = \dfrac{\sqrt{3}}{2}$ then the value of $\sin \theta$ is

(A) $\sqrt{3}$

(B) $\dfrac{1}{2}$

(C) $\dfrac{2}{\sqrt{3}}$

(D) $\dfrac{3}{2}$.

6. $(7 \times 11 \times 13 + 13)$ is a / an

(A) Composite number

(B) Prime number

(C) Irrational number

(D) Imaginary number.

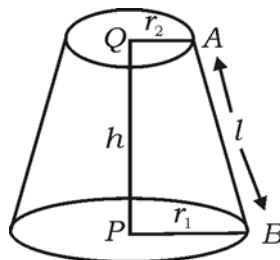7. The sum of an infinite geometric series whose first term is a and common ratio is r is given by

(A) $S_\infty = \dfrac{1}{a-r}$

(B) $S_\infty = \dfrac{1}{r-a}$

(C) $S_\infty = \dfrac{a}{1-r}$

(D) $S_\infty = \dfrac{1-r}{a}$.

8. Lateral surface area of the frustum of a cone is

(A) $\pi (r_2 - r_1) h$

(B) $\pi (r_1 + r_2) h$

(C) $\pi (r_1 - r_2) l$

(D) $\pi (r_1 + r_2) l$.

I. *Four* alternatives are given for each of the following questions / incomplete statements. Only one of them is correct or most appropriate. Choose the correct alternative and write the complete answer along with its letter of alphabet.

$8 \times 1 = 8$

1. If $U = \{1, 2, 3, 4, 5, 6, 7, 8\}$, $A = \{1, 2, 3\}$ and $B = \{2, 3, 4, 5\}$ then $(A \cup B)^{\prime}$ is

    (A) $\{5, 6, 7\}$

    (B) $\{6, 7, 8\}$

    (C) $\{3, 4, 5\}$

    (D) $\{1, 2, 3\}$

2. LCM of 18 and 45 is

    (A) 9

    (B) 45

    (C) 90

    (D) 81

3. The mean ($\overline{X}$) and the standard deviation (σ) of certain scores are 60 and 3 respectively. Then the co-efficient of variation is

(A) 5

(B) 6

(C) 7

(D) 8

4. Rationalising factor of $\sqrt{x-y}$ is

(A) $x-y$

(B) $\sqrt{x}$

(C) $\sqrt{x+y}$

(D) $\sqrt{x-y}$

5. If $f(x) = x^2 - 2x + 15$ then $f(-1)$ is

(A) 14

(B) 18

(C) 15

(D) 13

6. In a circle, the angle subtended by a chord in the major segment is

   (A) a straight angle

   (B) a right angle

   (C) an acute angle

   (D) an obtuse angle.

7. The length of the diagonal of a square of side 12 cm is

   (A) $5\sqrt{2}$ cm

   (B) 144 cm

   (C) 24 cm

   (D) $12\sqrt{2}$ cm.

8. The distance between the origin and the point $(-12, 5)$ is

   (A) 13 units

   (B) -12 units

   (C) 10 units

   (D) 5 units.