

## Comprehensive Test Series-01 Number Systems

TIME: 1 hr.

MM:

### General Instructions:

- All Questions are compulsory.
  - Each question carries 3 marks
  - Use of calculator is not permitted.
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Q.1 Find the rational number lying between:

- (i)  $\frac{1}{4}$  and  $\frac{1}{3}$       (ii)  $\frac{3}{8}$  and  $\frac{2}{5}$       (iii) -1 and  $\frac{1}{2}$   
(iv)  $-\frac{3}{4}$  and  $-\frac{2}{5}$       (v) 1.3 and 1.4      (vi) 0.75 and 1.2

Q.2 Express each of the following as vulgar fraction:

- (i) 0.3      (ii)  $0.\overline{34}$       (iii) 1.3      (IV) 0.17  
(v)  $0.1\overline{63}$       (VI) 0.54      (vii)  $3.\overline{14}$       (viii)  $1.\overline{324}$       (ix)  $0.4\overline{18}$

Q.3 Represent on the number line

$$\sqrt{2}, \sqrt{3}, \sqrt{5},$$

Q.4 Rationalise the denominator of the following:

- (i)  $\frac{1}{\sqrt{7}}$ ,      (ii)  $\frac{1}{\sqrt{7}-\sqrt{6}}$ ,  
(iii)  $\frac{1}{\sqrt{5}+\sqrt{2}}$ ,      (iv)  $\frac{1}{\sqrt{7}-2}$ ,

Q.5 Simplify:

- (i)  $2^{\frac{2}{3}} \cdot 2^{\frac{1}{5}}$       (ii)  $\left(3^{\frac{1}{3}}\right)^7$       (iii)  $\frac{11^{\frac{1}{2}}}{11^{\frac{1}{4}}}$       (iv)  $7^{\frac{1}{2}} \cdot 8^{\frac{1}{2}}$

Q.6 Find the remainder when  $x^3 - ax^2 + 6x - a$  is divided by  $x - a$ .