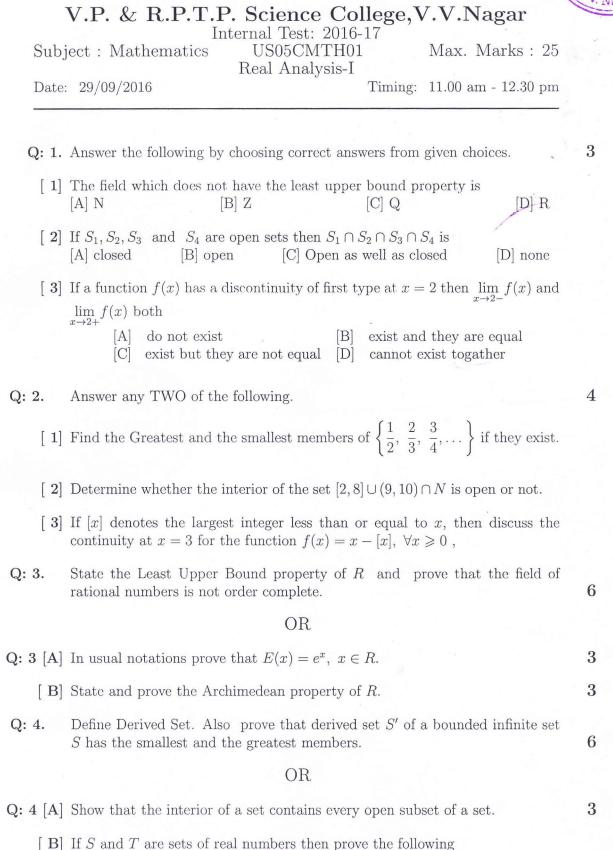


3



bred

(i)  $S \subset T \Rightarrow S' \subset T'$  (ii)  $(S \cup T)' = S' \cup T'$ 

**Q: 5** [A] Examine the following function for continuity at x = 0

$$f(x) = \begin{cases} \frac{xe^{\frac{1}{x}}}{1+e^{\frac{1}{x}}} & \text{when } x \neq 0\\ 0, & \text{when } x = 0 \end{cases}$$

**[B]** Prove that limit of a function is unique, if it exists.

## OR

**Q: 5.** Show that a function  $f : [a, b] \to \Re$  is continuous at point c of [a,b] iff

$$\lim_{n \to \infty} c_n = c \Longrightarrow \lim_{n \to \infty} f(c_n) = f(c)$$



3 3

6