

Professor Vishwanathan Iyer's

HERAMB COACHING CLASSES

Yogeshwar Towers, Katemanivali, Kalyan (East)

Date: 03/12/17

XII/MATHEMATICS

Marks: 30

Duration: 1Hour

Q.NO.1 ATTEMPT ANY FOUR :

(20)

(i) Examin the contiuity at $x = -1$

$$f(x) = \frac{3 - \sqrt{2x + 7}}{x - 1} \quad \text{for } x \neq 1$$
$$= -\frac{1}{3} \quad \text{for } x = 1$$

(ii) Examin the continuity at $x = 0$

$$f(x) = \frac{5^x - 3^x}{4^x - 3^x} \quad x = 0$$
$$= \log\left(\frac{5}{4}\right) \quad x \neq 0$$

(iii) Given function is continuous at $x = 0$

$$f(x) = \frac{5^x + 5^{-x} - 2}{x^2} \quad x \neq 0 \quad \text{find } f(0)$$

(iv) $f(x) = \frac{\tan 7x}{2x}$ for $x \neq 0$ $= k$ for $x = 0$ is continuous at $x = 0$. find the value of k

(v) $f(x) = \frac{1 - \sin x}{(\pi - 2x)^2}$ for $x \neq \frac{\pi}{2}$, is continuous at $x = \frac{\pi}{2}$ find $f\left(\frac{\pi}{2}\right)$

Q.NO.2 Discuss the continuity of the function

(10)

(i) $f(x) = \frac{a^{2x} - 1}{x}, x \neq 0$

$= 2 \log a, x = 0$ at $x = 0$.

(ii) If $f(x) = \frac{e^{2x} - 1}{ax}$ for $x < 0$

$= 1$ for $x = 0$

$= \frac{\log(1+7x)}{bx}$ for $x > 0$. at $x = 0$