SWAMI KESHVANAND INSTITUTE OF TECHNOLOGY, MANAGEMENT AND GRAMOTHAN, JAIPUR

Sub: Engineering Mathematics-I (1FY2-01)

Assignment 5

Sem/ Sec:……. Branch:……..Session ---------- MM:--------

Date of issue:…….. Date of submission:…….

Section A(Short answer questions)

Q.1 Discuss the convergence of sequence $\{b_n\}$, where $b_n = 1 + \frac{1}{3} + \frac{1}{3^2} + \ldots + \frac{1}{3^n}$

Q.2 Define Oscillatory series.

Q.3 Test the convergence of sequence $a_n = \frac{n^2-2n}{3n^2+n}$

Section B (Analytic / Problem solving questions)

Q.4 Test the convergence of $\sum x_n$ where $x_n = \sqrt{\frac{n^2+n-1}{n^3-2}}$

Q.5 Show that the series (a) $\sum_{n=1}^{\infty} \frac{(n+2)(n+3)}{n(n-1)}$ is divergent

Q.6 Test the convergence of $\sum_{1}^{\infty} \frac{\sqrt{n+1}-\sqrt{n}}{n^2}$

Section C(Descriptive / Analytical questions)

Q.7 Test for convergence $\frac{2}{1^2}x + \frac{3^2}{2^3}x^2 + \ldots + \frac{(n+1)^n}{n^{n+1}}x^n + \ldots \quad x > 0$

Q.8 Test the convergence of the series $1 + \frac{3}{7}x + \frac{3.6}{7.10}x^2 + \frac{3.6.9}{7.10.13} + x^3 + \ldots$

Q.9 Test for convergence of the series $\sum_{n=2}^{\infty} \frac{(-1)^n x^n}{n(n-1)}$ (0 < x < 1)

Q.10 Test the convergence of $\frac{1^2}{2^2} - \frac{1^2.3^2}{2^2.4^2} + \frac{1^2}{2^2}.\frac{3^2}{4^2}.\frac{5^2}{6^2}....$