SHREE RAGHAV PRASAD SINGH COLLEGE, JAINTPUR

B.A/B.Sc 3rd Semester, Session 2023-2027

Assignment -2024

Sub- Mathematics **Marks 10**

Paper- MJC/MIC-03: Real Analysis **Date of Submission 15/01/2024**

1. Define least upper bound and greatest lower bound with example
2. Show that $\lim_{n\to} \frac{3+2\sqrt{n}}{\sqrt{n}} = 2.$
3. State and prove Bolzano-Weierstrass theorem for sequence.
4. Test for convergence the series $\frac{2^2}{3^2} + \frac{2^2.4^2}{3^2.5^2.} + \cdots$
5. Test the convergency of the series whose general term is $u_n = \sqrt{n^4+1} - \sqrt{n^4-1}.$

Assignment -2024

Sub- Mathematics **Marks 10**

Paper- MJC-04: Ordinary Differential Equations **Date of Submission 15/01/2024**

1. Solve: $(D^2 + 2D + 1)^2 y = 0$
2. Solve the linear differential equation $\frac{dy}{dx} + 5y = x^2$
3. Solve $\frac{d^3y}{dx^3} + y = e^{-x}$
4. Solve the differential equation $\frac{d^2y}{dx^2} + 4y = \sin 3x + e^x + x^2$
5. Solve the differential equation $\frac{d^2y}{dx^2} - 3\frac{dy}{dx} + 2y = \cos 3x$