MAT 216

Assignment: 02

Each question carries 3 marks

13 x 3.84 = 50 marks

Last Date of Submission: 24.08.23

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7. Deduce the expression of Parseval's theorem.

8. If $x(t) = t - t^2$; $-\pi < t < \pi$ and x(t) is periodic over 2π then find the Fourier series of x(t).

9. If $f(t) = \int_{-1;\ 0<x<\pi}^{+1;\ -\pi<t<0}$; & f(t) is periodic over $[-\pi, \pi]$ then find the Fourier series of f(t) by using the complex form of Fourier series.

10. If A= $\begin{bmatrix} -2 & -4 & 2 \\ -2 & 1 & 2 \\ 4 & 2 & 5 \end{bmatrix}$; then find the eigenvectors of A.

11. If A = $\begin{bmatrix} 5 & 8 & 16 \\ 4 & 1 & 8 \\ -4 & -4 & 11 \end{bmatrix}$;then find the eigenspace of A for corresponding eigenvalue -3.

12. Describe the four fundamental subspaces of Linear Algebra with relevant illustration and briefly describe the orthogonality of vector sub-spaces.

13. If V= (2,7,8,0) and W= (3,7,0,8) span a vector sub-space S; then find the Orthogonal sub-space of S.