

5th Semester Mathematics (General)

Assignment, Paper - DSE-I(A)

Total - 20 Marks

1) Discuss the concept of a Subspace in a vector space.

Let V be the vector space of all functions from \mathbb{R} to \mathbb{R}

and $W_1 = \{f: f(4) = 3 + f(2)\}$, $W_2 = \{f: 2f(3) = f(1)\}$,

$W_3 = \{f: f(5) = 0\}$. Identify the subspaces of V . [5]

2) Elaborate the conceptions of row space and Column Space in your own words. [5]

3) A particle moves in a straight line with an acceleration which is μ times the distance from a fixed point 'O' in the straight line and is always away from 'O', μ being a constant. If at time $t=0$, the particles were projected from a distance 'a' from 'O' towards the point with velocity $V > a\sqrt{\mu}$, find the time after which the particle will arrive at 'O'. [5]

~~4) Discuss the concept of wave motion and its classification into transverse and longitudinal waves. Explain the difference between a wave pulse and a wave train. Also, discuss the difference between a progressive wave and a stationary wave.~~

4) Discuss Kepler's laws of planetary motion and their modifications. [5]

Submit latest by :- 23rd July 2021.