

## Delhi Institute of Technology and Management, Sonipat

Assignment No. – I      Subject: Applied Mathematics-III

Time: Submit within 7 days

Subject Code: ETMA-201

Max. Marks: 30

Date: 01-Nov-2021

Note: Attempt any five questions. All questions carry equal marks.

Q1. Find a Fourier series to represent  $x-x^2$  from  $x= -\pi$  to  $\pi$ .

Q2. Find the Fourier series expansion for  $f(x)$ , if

$$F(x)=-\pi, -\pi < x < 0$$

$$x \quad 0 < x < \pi$$

Q3. State whether  $y = \tan x$  can be expressed as a Fourier series. If so how? If not why?

Q4. Obtain the sine series for unity in  $(0, \pi)$ .

Q5. Obtain the half range cosine series for  $f(x) = (x-2)^2$  in the interval  $(0,2)$ .

Q6. Define Fourier transform pair (or) Define Fourier transform and its inverse transform.

Q 7. Find the Fourier Cosine transform of  $e^{-ax}$ ,  $a > 0$ .

Q8. Find the Fourier Sine transform of  $1/x$ .

Prepared by:

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