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Total No. of Questions – [02] Total No. of Printed Pages: 01

G.R. No.	

OCTOBER 2018 / IN - SEM (T2)

F. Y. M. TECH. (Design Engineering) (SEMESTER - I)

COURSE NAME: ADVANCED VIBRATIONS AND ACOUSTICS

COURSE CODE: MEPA11182

(PATTERN 2018)

Time: [30 Min] [Max. Marks: 10]

(*) Instructions to candidates:

1) **Answer Q.1 OR Q.2**
2) **Figures to the right indicate full marks.**
3) **Use of scientific calculator is allowed**
4) **Use suitable data where ever required**

Q.1) What is continuous system? Derive the one dimensional wave equation and its generalized solution for lateral vibration of string as a continuous system. Assume that the string is fixed at both ends. Apply this boundary condition and determine the frequency equation of the system. [10 Marks]

OR

Q.2) a) Find the generalized equation for transverse vibration of beam of rectangular cross section. [6 marks]

b) Derive the suitable equation for longitudinal vibration of bar having rectangular cross section. The bar is assumed to be of length L fixed at one end and free at other end. [4 marks]