Q.P. Code: 18CE1006

R18

Reg. No. | | | | | | | | | | |

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY::PUTTUR
(AUTONOMOUS)
M.Tech I year II Semester Supplementary Examinations Dec 2019
(For Students admitted in 2018 only)
STRUCTURAL DYNAMICS
(Structural Engineering)

Time: 3 hours **Max. Marks: 60**

(Answer all Five Units 5×12=60 Marks)

UNIT I

1 a. Derive the equation of motion for damped single degree of freedom system with forced vibration. 6M

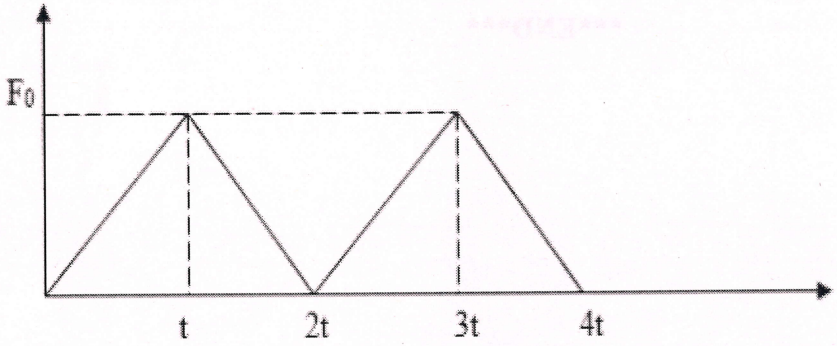
b. Briefly explain oscillatory motion 6M

OR

2 Explain different types of vibration problems and derive their equation of motion. 12M

UNIT II

Derive the amplitude of the given problem when time is 4t.

3 

12M

OR

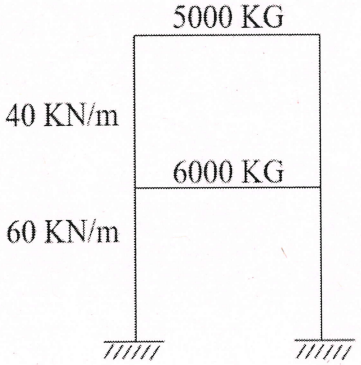
4 Derive the formula for Damping ratio & Frequency ratio for undamped single degree of freedom system with forced vibration. 12M

UNIT III

5 Derive the equation of motion for three degree of freedom system in matrix form and also derive the solution for the equation. 12M

OR

Draw the mode shapes for given problem.

6 

12M

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UNIT IV

7 Derive the solution of equation of motion for the beam subjected to uniformly distributed load. 12M

OR

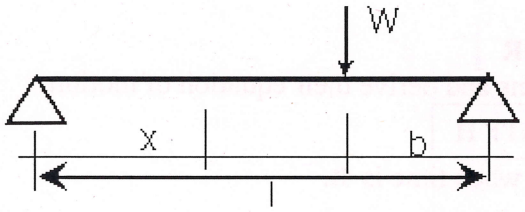
8 Derive the natural frequency and mode shapes for uniform beam having both end free. 12M

UNIT V

9 Explain step by step procedure of Stodola's method? Derive fundamental natural frequencies and mode shapes? 12M

OR

10 Find the fundamental natural frequencies and mode shapes of a vibratory system shown in figure by using Transfer matrix method 12M



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