

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATIONS-2022

B.Tech- Civil

COURSE CODE: 11MIWCE112

MAX. MARKS: 25

COURSE NAME: STRUCTURAL DYNAMICS

COURSE CREDITS: 3

MAX. TIME: 1 Hour 30 Min

Note: All questions are compulsory. Marks are indicated against each question in square brackets.

Q1. Derive the expression for steady state and transient response for a structure subject to harmonic vibration of undamped systems $\{p(t) = p_0 \sin \omega t\}$, also show the responses in graphical format. [8+4]

Q.2 What do you understand by dynamic amplification and phase lag, give formulation? [4]

Q.3 A Steel frame as shown in Figure below is subjected to horizontal load $F(t)$ applied at the girder level. The force decrease linearly from 5 kip at time $t=0$ to zero at $t=0.6$ seconds. Assuming the columns are massless and girders are rigid and damping is neglected. Find out the horizontal deflection at $t=0.5$ seconds. You may write important steps for possible partial marking [9]

