

# Unit 4 - Week 2

## Course outline

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Week 2

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## Assignment 2

The due date for submitting this assignment has passed.  
As per our records you have not submitted this assignment.

**Due on 2019-09-11, 23:59 IST.**

1) The frequency of steady-state vibration of an SDOF due to harmonic loading is equal to the 1 point

- a. Natural frequency
- b. Driving frequency
- c. Both natural frequency and driving frequency
- d. None of the above

- a.  
 b.  
 c.  
 d.

No, the answer is incorrect.  
Score: 0

Accepted Answers:

b.

2) The force experienced by a structure during earthquakes is 1 point

- a. Random
- b. Non-deterministic
- c. Deterministic
- d. None of the above

- a.  
 b.  
 c.  
 d.

No, the answer is incorrect.  
Score: 0

Accepted Answers:

a.

3) The equation of motion of a SDOF system for a force vibration problem is, 1 point

- a. Homogeneous ODE
- b. Non-Homogeneous ODE
- c. Froth order ODE
- d. Third order ODE

- a.  
 b.  
 c.  
 d.

No, the answer is incorrect.  
Score: 0

Accepted Answers:

b.

4) The steady-state amplitude of an under-damped SDOF system under harmonic loading is, 1 point

- a. Constant
- b. Exponentially decaying
- c. Monotonically decaying
- d. Monotonically increasing

- a.  
 b.  
 c.  
 d.

No, the answer is incorrect.  
Score: 0

Accepted Answers:

a.

5) For an un-damped SDOF system, the amplitude of vibration when the natural frequency is equal to the driving frequency, increases 1 point

- a. linearly
- b. Monotonically
- c. Quadratically
- d. Remains Constant

- a.  
 b.  
 c.  
 d.

No, the answer is incorrect.  
Score: 0

Accepted Answers:

a.

6) Magnification factor is the ratio of maximum amplitude with 1 point

- a. Maximum amplitude
- b. Static deflection
- c. Damping factor
- d. Damping ratio

- a.  
 b.  
 c.  
 d.

No, the answer is incorrect.  
Score: 0

Accepted Answers:

b.

7) The magnification factor of an under-damped system is maximum, near 1 point

- a.  $\omega = 0$
- b.  $\omega = \omega_n$
- c.  $\omega_n = 0$
- d.  $\omega = \omega_n/2$

- a.  
 b.  
 c.  
 d.

No, the answer is incorrect.  
Score: 0

Accepted Answers:

b.

8) The force experienced by a machine of mass M rotating at  $\omega$  with an unbalance mass 'm' at a radius of 'e' is given as, 1 point

- a.  $m e \omega^2 \sin \omega t$
- b.  $M e \omega^2 \sin \omega t$
- c.  $m e \sin \omega t$
- d.  $M e \sin \omega t$

- a.  
 b.  
 c.  
 d.

No, the answer is incorrect.  
Score: 0

Accepted Answers:

a.

9) The magnification factor of an un-damped SDOF system with  $\omega = \omega_n/2$  is, 1 point

- a. 2.33
- b. 0.333
- c. 1.33
- d. 0.667

- a.  
 b.  
 c.  
 d.

No, the answer is incorrect.  
Score: 0

Accepted Answers:

c.

10) The magnification factor at resonance of an SDOF system with damping factor 0.1 is 1 point

- a. 0
- b. 0.1
- c. 5
- d. 1

- a.  
 b.  
 c.  
 d.

No, the answer is incorrect.  
Score: 0

Accepted Answers:

c.

11) Magnification factor of a lightly damped system is always 1 point

- a.  $> 1$
- b.  $< 1$
- c.  $= 1$
- d. None of the above

- a.  
 b.  
 c.  
 d.

No, the answer is incorrect.  
Score: 0

Accepted Answers:

d.

12) The phase angle of an un-damped system under harmonic loading is 1 point

- a. 0
- b.  $\pi/2$
- c. varying
- d.  $\pi/4$

- a.  
 b.  
 c.  
 d.

No, the answer is incorrect.  
Score: 0

Accepted Answers:

a.

13) The phase angle of an under-damped system at resonance is 1 point

- a. 0
- b.  $\pi/2$
- c. varying
- d.  $\pi/4$

- a.  
 b.  
 c.  
 d.

No, the answer is incorrect.  
Score: 0

Accepted Answers:

b.

14) The initial excitation of an under-damped system under harmonic excitation is called 1 point

- a. Steady-state
- b. Transient
- c. Non-Periodic
- d. None of the above

- a.  
 b.  
 c.  
 d.

No, the answer is incorrect.  
Score: 0

Accepted Answers:

b.

15) The earthquake effect on a structure can be modeled as, 1 point

- a. Rotating motion
- b. Ground motion
- c. Harmonic load
- d. None of the above

- a.  
 b.  
 c.  
 d.

No, the answer is incorrect.  
Score: 0

Accepted Answers:

b.