Unit 6 - Week 4

Assignment 4

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

Due on 2020-10-14, 23:59 IST.

1) Deflection of a beam can be derived from which of the following equation: *1 point*

(A)	Moment – Stress Equation: $\frac{M}{I} = \frac{\sigma}{y}$
(B)	Moment Curvature Equation: $\frac{M}{I} = \frac{E}{R}$
(C)	Stress – Curvature Equation: $\frac{\sigma}{y} = \frac{E}{R}$
(D)	Shear Stress Equation: $\tau = \frac{F}{Ib}\bar{A}y$

- A
- B
- C
- D

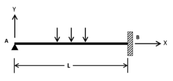
No, the answer is incorrect.
Score: 0
Accepted Answers:
B

2) Which TWO statements are TRUE regarding the boundary condition of slope and deflection equation of a beam? *1 point*

- (A) Boundary conditions are derived from Moment-Stress equation of beam
- (B) Boundary conditions predominantly depend upon the nature of the structural support.
- (C) Boundary conditions are same for all types of beams but differ due to nature of loading.
- (D) Boundary conditions are required to establish the slope and deflection equation of beam.

No, the answer is incorrect.
Score: 0
Accepted Answers:
(B) Boundary conditions predominantly depend upon the nature of the structural support.
(D) Boundary conditions are required to establish the slope and deflection equation of beam.

3) A loaded propped cantilever beam is shown in the figure below. Read the following options and identify the wrong boundary condition. *1 point*



(A)	$At\ x = 0, \frac{dy}{dx} = 0$
(B)	$At\ x = 0, y = 0$
(C)	$At\ x = L, \frac{dy}{dx} = 0$
(D)	$At\ x = L, y = 0$

- A
- B
- C
- D

No, the answer is incorrect.
Score: 0
Accepted Answers:
A

4) A simply supported beam of span 4-meter is loaded with full span UDL of intensity 24 KN/m. If the same beam is loaded with a concentrated load 'P' at mid span, replacing the UDL such that in both the cases the central deflection measured same, the magnitude of the mid span concentrated load 'P' will be _____ KN. *1 point*

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Numeric) 60

5) The following statements are made regarding the Force Methods of structural analysis. Read the statements and choose the correct option *1 point*

Statement P : In this method compatibility equations are written for force and moment equilibrium.
Statement Q : The Slope-Deflection method is a force method

- (A) Statements P and Q both are TRUE
- (B) Statement P is TRUE, but Statement Q is FALSE
- (C) Statement P is FALSE, but Statement Q is TRUE
- (D) Statements P and Q both are FALSE

No, the answer is incorrect.
Score: 0
Accepted Answers:
(D) Statements P and Q both are FALSE

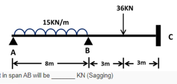
6) Out of the following which one is the computer method of structural analysis *1 point*

- (A) Strain Energy Method
- (B) Moment Distribution Method
- (C) Matrix Method
- (D) Kani's Method

No, the answer is incorrect.
Score: 0
Accepted Answers:
(C) Matrix Method

7) **For Question Number 7 and 8, please read the following statement and answer accordingly.**

A two span beam ABC is shown in the figure below. The support moment at B and C are 50 and 20 KN-m respectively. Both the support moments are hogging.



The mid-span moment in span AB will be _____ KN (Sagging)

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Numeric) 95

1 point

8) The mid-span moment in span BC will be _____ KN (Sagging) *1 point*

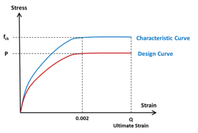
No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Numeric) 19

9) Out of the following which one is **NOT** included in the objectives of structural design *1 point*

- (A) Stability
- (B) Flexibility
- (C) Durability
- (D) Economy

No, the answer is incorrect.
Score: 0
Accepted Answers:
(B) Flexibility

10) The design stress-strain curve of concrete is shown in the figure below. Identify the two missing values P and Q and select the correct option. *1 point*



	P	Q
(A)	0.64 f_{ck}	0.0035
(B)	0.64 f_{ck}	0.0045
(C)	0.446 f_{ck}	0.0045
(D)	0.446 f_{ck}	0.0035

- A
- B
- C
- D

No, the answer is incorrect.
Score: 0
Accepted Answers:
D

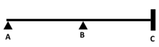
11) Match the methods of determining slope and deflection of a beam in Group-I and their corresponding illustrations in Group-II *2 points*

Group-I		Group-II	
P	Double Integration Method	1	Semi-graphical Method of specific cases
Q	Macaulay 's Method	2	Specific Types loading and beams
R	Moment-Area Method	3	Symmetrical loading with moment continuity
S	Unit Load Method	4	Complex Loading with moment discontinuity

- (A) P-2 , Q-4 , R -1 , S-3
- (B) P-3 , Q-2 , R -4 , S-1
- (C) P-3 , Q-4 , R-1, S-2
- (D) P-3 , Q-1 , R-4 , S-2

No, the answer is incorrect.
Score: 0
Accepted Answers:
(C) P-3 , Q-4 , R-1, S-2

12) A statically indeterminate beam is given in the figure below. The end-A is hinge-supported and the end-C is fixed. Study the equilibrium equations for the beam as per the displacement method in case of general loading condition and choose the correct option. *2 points*



P	$M_{BA} + M_{BC} = 0$
Q	$M_{CB} = 0$
R	$M_{AB} = M_{BA}$
S	$M_{AB} = 0$

- (A) Only P is TRUE
- (B) P and S are TRUE
- (C) Q and S are TRUE
- (D) Q and R are TRUE

No, the answer is incorrect.
Score: 0
Accepted Answers:
(B) P and S are TRUE

13) The following two statements are made regarding the structural grid. Read the statements to identify them and choose the correct option *2 points*

Statement P : It is the line passing through structural footprint of building
Statement Q : It provides Major Spatial Division

- (A) Statements P and Q both are TRUE
- (B) Statement P is TRUE, but Statement Q is FALSE
- (C) Statement P is FALSE, but Statement Q is TRUE
- (D) Statements P and Q both are FALSE

No, the answer is incorrect.
Score: 0
Accepted Answers:
(A) Statements P and Q both are TRUE

14) The following four statements are made regarding the design principles of structural design methods. Read the statements to identify the correct option of *2 points* design principles that belongs to Limit State Method (LSM).

Statement P: It consider safety at failure stage.
Statement Q: Structural material behaves in a linear elastic manner.
Statement R: It leads to oversize and uneconomical section designs.
Statement S: It considers serviceability in working condition.

- (A) Both P and Q
- (B) Both Q and R
- (C) Both P and S
- (D) Both R and S

No, the answer is incorrect.
Score: 0
Accepted Answers:
(C) Both P and S

15) Identify the correct option that gives the right combination of gravity and lateral load in a building *2 points*

	Gravity Load	Lateral Load
(A)	Dead Load, Live Load, Snow Load	Wind Load, Seismic Load
(B)	Dead Load, Live Load	Snow Load, Wind Load, Seismic Load
(C)	Dead Load, Snow Load	Live Load, Wind Load, Seismic Load
(D)	Dead Load, Snow Load, Seismic Load	Live Load, Wind Load

- A
- B
- C
- D

No, the answer is incorrect.
Score: 0
Accepted Answers:
A