Unit 3 - Week 1

Assignment 1

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

Due on 2020-09-30, 23:59 IST.

1) The study of forces and the displacement of bodies, geometry of the motion without addressing the cause of movement is known as *1 point*

- (A) Statics
- (B) Solid Mechanics
- (C) Kinematics
- (D) Kinetics

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

2) Read the following two statements regarding cantilever beam and select the correct option *1 point*

Statement: P It has three degrees of freedom
Statement: Q It is a statically determinate beam

- (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:
(C) Statement P is FALSE, but Statement Q is TRUE

3) The contact forces applied in the four wheels of a car is an example of *1 point*

- (A) Coplanar Parallel Force
- (B) Coplanar Non-concurrent Force
- (C) Non-Coplanar Concurrent Force
- (D) Non-Coplanar Parallel Force

No, the answer is incorrect.
Score: 0
Accepted Answers:
(D) Non-Coplanar Parallel Force

4) A system of two forces which are equal in magnitude, opposite in direction and have parallel lines of action is called *1 point*

- (A) Axial Force
- (B) Couple
- (C) Compression
- (D) Tension

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

5) If two equal force of magnitude 'P' acting at an angle of 60° with each other. The magnitude of the resultant force will be *1 point*

(A) $P\sqrt{2}$ **(B)** 3P **(C)** $P\sqrt{3}$ **(D)** 2P

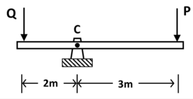
- A
- B
- C
- D

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

6) *1 point*

For Question Number 6 and 7, please read the following statement and answer accordingly.

A bar is hinged at 'C' and loaded with force P and Q as per the figure given below:



If P = 3N and Q = 6N, then the resultant moment at hinge-C will be

- (A) 3N-m (CW)
- (B) 3N-m (ACW)
- (C) 4N-m (CW)
- (D) 4N-m (ACW)

No, the answer is incorrect.
Score: 0
Accepted Answers:
(B) 3N-m (ACW)

7) Keeping Q = 6N, The value of P that is going to provide the system in equilibrium is *1 point*

- (A) 4N
- (B) 6N
- (C) 3N
- (D) 2N

No, the answer is incorrect.
Score: 0
Accepted Answers:
(A) 4N

8) The left and right end supports of a straight beam are fixed and hinged respectively. The number of unknown reactions in the beam will be *0 points*

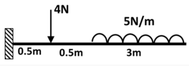
- (A) 3
- (B) 2
- (C) 4
- (D) 0

No, the answer is incorrect.
Score: 0
Accepted Answers:
(B) 2

9) *1 point*

For Question Number 9 and 10, please read the following statement and answer accordingly.

A 4-meter long cantilever beam is loaded as per the figure below:



The vertical reaction at the fixed end will be

- (A) 19N
- (B) 15N
- (C) 9N
- (D) 7N

No, the answer is incorrect.
Score: 0
Accepted Answers:
(A) 19N

10) The moment at the fixed end will be *1 point*

- (A) 15 N-m
- (B) 19 N-m
- (C) 27.5 N-m
- (D) 39.5 N-m

No, the answer is incorrect.
Score: 0
Accepted Answers:
(D) 39.5 N-m

11) A railway truss bridge is shown in the figure below. Identify the nature of the forces in the members. Read the statements given below, and choose the correct option. *2 points*

Statement: P Set of Force in member PR & QS are example of Parallel force
Statement: Q Set of Force in member QR & QS are example of Collinear force
Statement: R Set of Force in member PR & TR are example of Concurrent force

- (A) All the three statements are correct
- (B) Statement P and R are correct, Statement-Q is wrong
- (C) Only Statement-R is correct, Statement P and Q are wrong
- (D) Only Statement-P is correct, Statement Q and R are wrong

No, the answer is incorrect.
Score: 0
Accepted Answers:
(B) Statement P and R are correct, Statement-Q is wrong

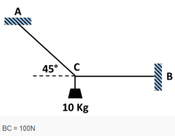
12) The following statements are made regarding the stability of structure. Read the statements carefully and choose the correct option *2 points*

Statement: P If the Support Reactions can be obtained by Equations of Statics only, then the structure is statically Determinate
Statement: Q If the Support Reactions cannot be obtained by Equations of Statics only, then the structure is statically Unstable

- (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:
(B) Statement P is TRUE, but Statement Q is FALSE

13) A 10Kg weight is supported by two cables AC and BC. Assuming acceleration due to gravity g = 10 m/sec² choose the correct option of the Force (in Newton) in cable AC and BC *2 points*



- (A) Both in AC & BC = 100N
- (B) AC = 100N & BC = 141N
- (C) Both in AC & BC = 141N
- (D) AC = 141N & BC = 100N

No, the answer is incorrect.
Score: 0
Accepted Answers:
(D) AC = 141N & BC = 100N

14) The three statements are made regarding the three types of supports of a structure . Read the statements and choose the correct option. *2 points*

Statement: P In Hinge supports moment is Zero
Statement: Q Fixed support has Three unknown reactions
Statement: R The Roller support has two unknown reactions

- (A) All the three statements are correct
- (B) Statement P and R are correct, but Statement-Q is wrong
- (C) Only Statement-R is wrong, but Statement P and Q are correct
- (D) All the three statements are wrong

No, the answer is incorrect.
Score: 0
Accepted Answers:
(C) Only Statement-R is wrong, but Statement P and Q are correct

15) A rectangular water tank is holding 10 Kilo litre of water. Four columns are uniformly supporting the water tank. Assuming the acceleration due to gravity, g = 10m/sec², the load shared by each column due to water is *2 points*

- (A) 100KN
- (B) 75KN
- (C) 50KN
- (D) 25KN

No, the answer is incorrect.
Score: 0
Accepted Answers:
(D) 25KN