



**PRESIDENCY UNIVERSITY  
BENGALURU**

**SCHOOL OF ENGINEERING**

**MAKE UP EXAMINATION – JAN 2023**

**Course Code:** CIV 101

**Course Name:** ELEMENTS OF CIVIL ENGINEERING

**Program** : B.TECH

**Date:** 25-Jan-2023

**Time:** 01:00 PM to 04:00 PM

**Max Marks:** 100

**Weightage:** 50%

**Instructions:**

- (i) Read all the questions carefully and answer accordingly.  
(ii) Use of Non-Programmable Scientific Calculator is permitted

**Part A [Memory Recall Questions]**

**Answer all the Questions. Each Question carries TWO marks.**

**(9Qx 2M = 18M)**

1. The structure which provides passage over the obstacles like valley, river without closing the way underneath is  
a) Dam                                  b) Bridge                                  c) Harbour                                  d) Airport  
(C.O.No.1) [Knowledge]
2. Precipitation in the form of fine droplets of water whose size is less than 0.5 mm and intensity is less than 1 mm/hr is known as.  
a) Rainfall                                  b) Glaze  
c) Sleet    d) Drizzle                                  (C.O.No.3) [Knowledge]
3. State whether the following statement is true or false. Load bearing structures are more resistant to Earthquake than framed structures.  
a) True    b) False  
c) Cannot say                                  d) Data given is insufficient                  (C.O.No.1) [Knowledge]
4. Mat or Raft foundations are useful in reducing the \_\_\_\_\_ settlements of building on non-homogeneous soils, where there is a large variation in the loads on individual columns.  
a) Differential                                  b) Uniform  
c) Combined                                  d) None of the above                  (C.O.No.1) [Knowledge]
5. How are dams classified?  
a) Based on materials                          b) Based on functionality

c) Based on structural behavior    d) All of the above    (C.O.No.3) [Knowledge]

6. Turbidity belongs to\_\_\_\_\_

a) Physical parameter    b) Chemical Parameter

c) Biological Parameter    d) None of these    (C.O.No.2) [Knowledge]

7. The boundary between pavement and footpath is known as

a) Median    b) Camber

c) Kerb    d) Shoulder    (C.O.No.3) [Knowledge]

8. \_\_\_\_\_ is a component of the bridge which transmits forces from super structure to sub structure while permitting angular and linear movement between parts.

a) Girder    b) Bearing

c) Pier    d) Abutment    (C.O.No.1) [Knowledge]

9. The number of support reactions in a fixed support is \_\_\_\_\_

a) 2    b) 1

c) 3    d) 0    (C.O.No.4) [Knowledge]

## Part B

**Answer all the Questions. Each Question carries TEN marks.**

**(4Qx10M = 40M)**

10. Dam is as an obstruction constructed across a stream or river. Behind this barrier water is collected forming a pool. Write a note on (i) Purposes of construction of Dam (ii) Types of precipitation.    (C.O.No.2) [Comprehension]

11. The basic function of a building is to provide structurally sound and environmentally controlled spaces to house and protect occupants and contents. Differentiate between the load bearing structure and framed structure.    (C.O.No.1) [Comprehension]

12. Whether the structure is small or large, it must be designed and built to withstand the forces it will face. Discuss the types of force systems and different types of support with neat sketch.    (C.O.No.4) [Comprehension]

13. What are the equilibrium equations used to define coplanar concurrent force system and coplanar non concurrent force system? Determine the magnitude and direction of resultant of the force system acting on a particle as shown in Figure 1.    (C.O.No.3) [Comprehension]

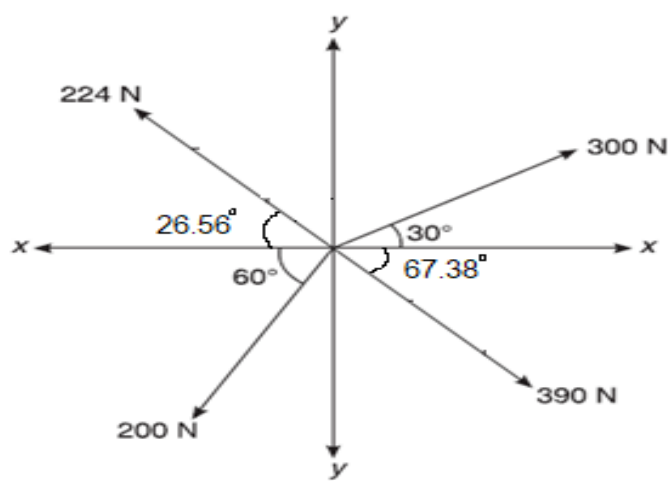


Fig. 1

**Part C**

**Answer all the Questions. Each Question carries FOURTEEN marks. (3Qx14M=42M)**

14. A string ABCD is tied at A and D to hooks as shown in Figure 2. At C, weight of 433N is a suspended. And at B, an unknown weight W is suspended such that BC is horizontal and AB and CD are inclined at 45° and 60°, respectively, to the horizontal. Determine the tensions in AB, BC and CD and find the magnitude W. (C.O.NO.3) [Comprehension]

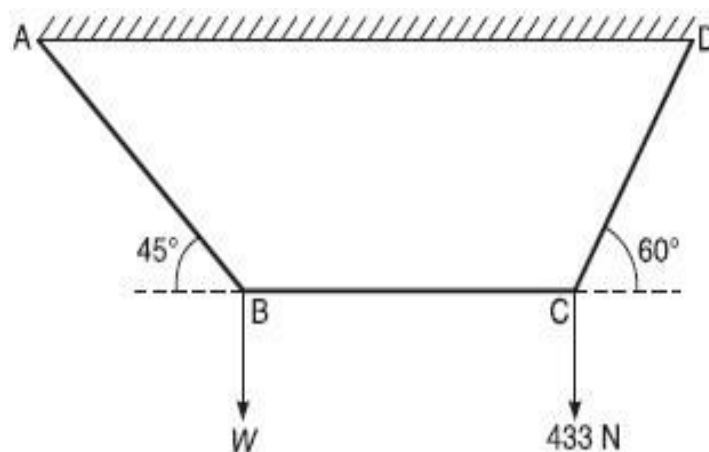
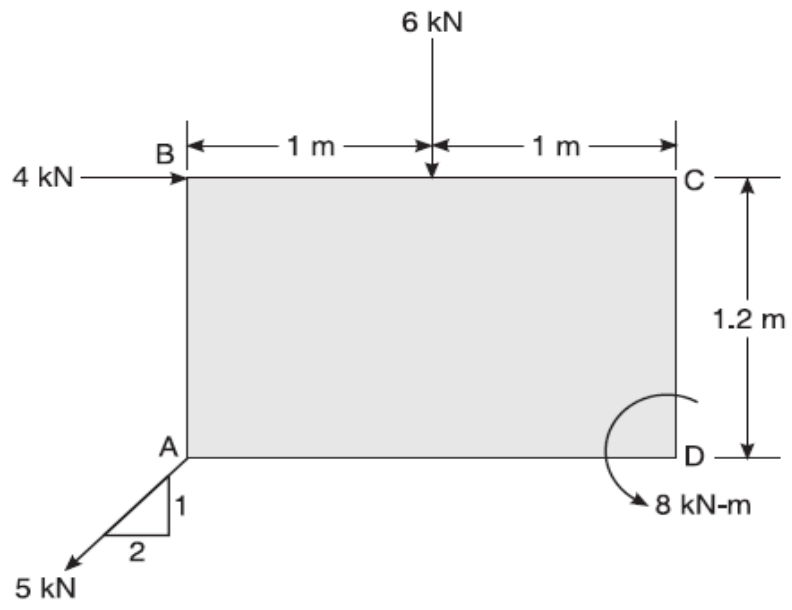


Fig. 2

15. The water treatment plant is planned to construct near Rajanukunte. Enlist the various physical and chemical parameters need to be considered along with their treatment process. Also the foundation soil where treatment plant is to be constructed has the good safe bearing capacity. Enlist the different types of shallow foundation and discuss the suitable foundation for this structure. (C.O.NO.2) [Comprehension]
16. A rigid plate is subjected to the forces as shown in Figure 3, compute resultant of forces and position of resultant force with respect to point 'D' of the plate.



**Fig. 3**

(C.O.NO.4) [Comprehension]