

Master of Construction Engg. Second Year 1st Semester Exam, 2025
CONDITION ASSESSMENT & HEALTH MONITORING OF STRUCTURES – II

Time : Three hours

Full Marks : 100

(50 Marks for each Part)

Use separate answer scripts for each Part

Part-I (50 Marks)

Answer **Q1** and any other one **question**. Explain your answer with neat sketches if necessary. Assume any other relevant data not provided.

NO CODES ARE ALLOWED

1.
 - a) Discuss on the **Limitations** of **Non-destructive test** and **Load test** of Structures. How these limitations are approached to overcome in **SHM techniques**? 6
 - b) Discuss the significance of **Structural Health Monitoring** in the context of **Reliability** and **Maintenance Cost** 4
 - c) Define "**Damage**" in the context of **Structural Health Monitoring**. 3
 - d) Critically compare **SHM** with **Human Health**. 3
 - e) Discuss **System Identification** in the context of **SHM** 4
 - f) Discuss on **different types** of **SHM** specifying their **advantages in practical implementations**. 5
 2. Discuss on the **principle, procedure** and **interpretation** criteria of **load test** for **bridge** structure according to **IRC Codes**. 25
- OR**
3.
 - a) Discuss **Static Condensation Technique**. 15
 - b) Discuss **SHM** based on **System Identification** from **Limited Static Responses** 15

[Turn over

Master of Construction Engineering 2nd year 1st semester Examination – 2025
Subject: **Condition Assessment and Health Monitoring of Structures-II**
Total Time : Three hours

Full Marks: 100

Part-II(Full Marks-50)
Use separate Answer Sheet for Each Part

Answer any ten questions [10 ×5=50]

Write a short note

1. Basic principle of Ultra sonic Test of Steel.
2. DP test of Steel and its advantages
3. Differentiate between MIG and TIG welding.
4. Distortion of Steel due to Welding.
5. Basic principle of Radiography Test.
6. Describe the Arc Welding Process.
7. Differentiate between Fracture and fatigue of steel.
8. Explain of Laminations of steel.
9. Advantage and disadvantage of riveted, welded and bolted connections.
10. Write the name of different types of testing for Quality control aspect of welded joints.
11. Write the name of different types of Steel joints and also sketch.
12. Describe the fire damage assessment of steel member.
13. Describe the magnetic particle test and its advantages.
14. Describe the process of radio graphic test.
15. Describe the Eddy current test.