

Sub Code:**CET-304**

ROLL NO.....

**SEMESTER EXAMINATION, 2022-23
YEAR**

Programme – Ist Yr. M.Tech – STRUCTURE AND CONSTRUCTION ENGINEERING

STRUCTURAL HEALTH MONITORING

Duration : 3:00 hrs

Max Marks: 100

Note:-Attempt all questions. All Question carry equal marks. In case of any ambiguity or missing data, the same may be assumed and state the assumption mad in the answer.

Q 1. Answer any four parts of the following.

- a) Describe the process of structural health monitoring of structures in detail.
- b) State the causes of deterioration in reinforced concrete structures.
- c) Discuss various measures in structural health monitoring in reinforced cement concrete structures.
- d) What are the factors affecting the health of a structure? Explain in detail.
- e) Describe the importance of structural safety in alteration process.
- f) List out the various categories of inspections and how to do the inspection in construction site.

Q 2. Answer any four parts of the following.

- a) Explain the structural health monitoring systems available in India.
- b) Discuss the step by step procedure of SHM.
- c) Explain the investigation and its management system.
- d) What are the different types of sensors used for assessment of a structure.
- e) What is static response measurement in static field testing.
- f) Explain the simulations and loading methods in static field testing.

Q 3. Answer any two parts of the following.

- a) How to assess the health of structures. List out some of the methods in health assessment of structures.

- b)** List out the static test and also explain any two test briefly.
- c)** What are the functions of hardware tools in static structural health monitoring.

Q 4. Answer any two parts of the following.

- a)** List out the types of dynamic field tests and suggest any two tests to identify the structural health.
- b)** Explain about the piezo – electric materials and other smart materials in structural health monitoring.
- c)** What are the different types of sensors used in structural health monitoring? Discuss in detail.

Q 5. Answer any two parts of the following.

- a)** Write a note on remote structural health monitoring.
- b)** What is Health Monitoring of Structural Materials and Components Methods with Applications.
- c)** Explain the Structural Health Monitoring and Intelligent Infrastructure.

