

FACULTY OF ENGINEERING

B.E. 4/4 (Civil) II - Semester (Main & Backlog) Examination, May / June 2019

**Subject : Health Monitoring and Retrofitting of Structures
(Elective – II)**

Time : 3 Hours

Max. Marks: 75

Note: Answer all questions from Part-A and answer any five questions from Part-B.

PART – A (25 Marks)

- 1 Define structural health monitoring. (2)
- 2 List the basic components of structural Health monitoring. (3)
- 3 Differentiate between active and passive structural health monitoring. (3)
- 4 What is capacitive sensing? (2)
- 5 Mention the applications of Non-destructive testing. (3)
- 6 What do you infer by performing a visual Inspection? (2)
- 7 Write about the different stages in condition survey. (2)
- 8 Mention the possible defects in a concrete structure. (3)
- 9 Mention the materials used for repair and rehabilitation. (2)
- 10 Define repair, rehabilitation and retrofitting of structures. (3)

PART – B (50 Marks)

- 11 Bring out the analogy between the nervous system of a man and a structure with SHM. (10)
- 12 Explain the health monitoring system in bridges. (10)
- 13 Write short notes on :
 - (a) Visual Inspection method (5)
 - (b) Ground penetrating radar method. (5)
- 14 What is condition survey? Explain why quality control of concrete structures is important. (10)
- 15 Explain the various steps involved in modeling of repaired composite structures. (10)
- 16 Write briefly about the applications of SHM for external post tensional cables. (10)
- 17 Explain the testing methods used for testing of strength of concrete. (10)
