OCT. 2018 / IN - SEM (T2) **F. Y. M. TECH. (CIVIL-Structures) (SEMESTER - I)**
COURSE NAME: Critical Review of Design of Concrete Structures **COURSE CODE:** CVPB11182
Time : [0.5 Hour] **(PATTERN 2018)** [Max. Marks : 10]

Unit-C.O.-Question Mapping

Q. No	UNIT	Total Marks	Degree of Difficulty	CO- Que. Mapping	Cognitive Level
1	3	5	Medium	1 & 3	Recall, Critical Thinking, Describe, Sketch, Conclude, Recommend, Reporting, Judgment.
2	3	5	Medium	1 & 3	Adv. Knowledge, Apply, Calculate, Rationalize, Review, Present, Interpretation, Appraise, Understanding, Describe, Judge
3	3	5	Medium	1 & 3	Observe, Identify, Critical Thinking, Describe, Review, Adv. Knowledge, Comprehend, Apply, Rationalize, Interpretation, Decide, Conclude, Reporting, Deduce, Judgment, Visualize.
4	3	5	Difficult	1 & 3	Core Knowledge, Recall, Apply, Critical Thinking, Rationalize, Understanding, Compare, Examine, Justify, Visualize, Describe, Illustrate

C.O.s: Students will be able to … …

1) Demonstrate the performance requirements for the design of the RC elements considered by IS code
2) Appraise the flexure design using working stress method
3) Establish and demonstrate the various performance states on M-phi curve (serviceability, cracking, yielding, ultimate)
4) Demonstrate the limit state of serviceability design for flexure member
5) Demonstrate the limit state method of shear design for flexure member
6) Establish the P-M curve for the column under uniaxial load case

Course Objectives:

- ✓ To appraise the basics of reinforced concrete design
- ✓ To comprehend and apply the knowledge of composite behavior
- ✓ To solve design problem

Unit III : Limit State Method - Flexure

Introduction –assumptions and Philosophy, Performance limit states, Flexure section analysis, M-phi curve. Demark the various performance states on M-phi curve (serviceability, cracking, yielding, ultimate)

MARKING GUIDANCE & SOLUTIONS

Ans.1) [5 marks]
Labeled sketch and FBD of RCC beam in flexure showing cracks, rebar-to-concrete bond, N.A.-Axis, loads-reaction, and total slip [2]. Explain the rationale of - (i) Mobilized rebar-to-concrete Bond Stress; (ii) Re-distribution of stresses [3]

Ans. 2) [5 marks]
Bulleted description may include, but not limited to the following points; Discussion of key points of the flexural failure [1] with sketch [1], root-causes [2], and solutions [1].

Ans. 3) [5 marks]
Bulleted description may include, but not limited to the following points on following figure and report observations [2], and interpretations [3]

Ans. 4) [5 marks]
Explanation [3] with figures [2] the *Bare Bar and Embedded Bar Effects* in RCC section