

T. Y. B.ARCH. SEM – VI (2010 COURSE) : WINTER - 2017

SUBJECT: THEORY OF STRUCTURES & BUILDING

MATERIALS-VI

Day: **Thursday**
Date: **09/11/2017**

W-2017-3255

Time: **2.00PM TO 05.00 PM**
Max Marks: 100

N.B:

- 1) Attempt any **THREE** questions from **Section-I** & all Four from **Section-II**.
- 2) Answer to both sections should be written in **SEPARATE** answer Book.
- 3) Illustrate your answers with neat sketches **WHEREVER** necessary.
- 4) Use on non- programmable **CALCULATOR** is allowed.
- 5) Assume suitable data if necessary.

SECTION-I

- Q.1** a) Explain raft footing and pile foundation. (08)
b) Design the footing for following data: (12)
Axial load on column= 300 KN
Size of column= 300 mm X 450 mm
Longitudinal reinforcement in column= 230 KN/mm²
Allowable pressure on soil = 8 bars of 20mm
Characteristics strength of concrete= 20 N/mm²
Characteristics strength of steel= 415 N/mm²
- Q.2** a) What is the difference between over reinforced section and under reinforced section? (08)
b) An RC beam section is 230 mm wide and 415 mm effective depth is subjected to a factored BM of 50 KNm. Determine the reinforcement required at the bottom if use of M20 concrete and Fe415 steel is made. (12)
- Q.3** a) Draw stress block diagram for balanced reinforced beam having rectangular section. (10)
b) Difference between W.S.M and L.S.M. (10)
- Q.4** a) State IS specification for minimum shear reinforcement and maximum spacing of stirrups in beam. (10)
b) What are the earthquake damages to RCC buildings? (10)

SECTION-II

- Q.5** What are sealants? Give properties of good sealants used in buildings with examples. (10)
- Q.6** Write a note on insulating materials and their application in building. (10)
- Q.7** What are the various types of glass used in buildings? Explain their uses with examples. (10)
- Q.8** Write a note on adhesives and provide examples of their application in buildings. (10)

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