No. of Printed Pages : 4

BAR-004

BACHELOR OF ARCHITECTURE (B.Arch.)

Term-End Examination

00408

June, 2016

BAR-004 : THEORY OF STRUCTURES – I

Time : 3 hours *Maximum Marks : 70*

Note : *Question no. 1 is* ***compulsory****. Answer any* ***four*** *questions from the remaining questions.*

1. Choose the correct answer from the given four alternatives. *7×2=14*

(a) Which of the following supports is provided to take care of effects due to temperature variation ?

(i) Fixed support

(ii) Roller support

(iii) Hinged support

(iv) None of the above

(b) In a plane structure, a fixed support has a number of reactions equal to

(i) 3

(ii) 2

(iii) 6

(iv) 4

(c) Deflection caused by unit force is defined as

(i) Strain

(ii) Flexibility

(iii) Unit deflection

(iv) Stiffness

(d) Determination of internal action in structures is considered in

(i) Design

(ii) Drafting

(iii) Analysis

(iv) None of the above

(e) Dead loads

(i) change their positions frequently

(ii) are normally taken as live loads

(iii) do not change their positions

(iv) None of the above

(f) The necessary condition for equilibrium of a body is

(i) $\Sigma H = 0$

(ii) $\Sigma V = 0$

(iii) $\Sigma M = 0$

(iv) All of the above

(g) Structures should have

(i) Stability

(ii) Stiffness

(iii) Strength

(iv) All of the above

2. (a) What do you understand by live loads ? Discuss briefly their occurrence in a structure. 7

(b) Explain the relation between stress and strain. Discuss the procedure to obtain this relation. 7

3. (a) Define roller support. Discuss its importance in a structure. 7

(b) Discuss why adequate strength is needed for a structure. 7

4. (a) Define factor of safety. Explain its role in the analysis of a structure. 7

(b) Explain wind loads. Discuss briefly the nature of wind loads. 7

5. (a) Explain briefly the general functions of a structure. 7

(b) Define bending stresses. Discuss their occurrence in a structure. 7

6. (a) Discuss the importance of good foundation for a structure. 7

(b) Explain Uniformly Distributed Load. Discuss its occurrence in a structure. 7

7. Write short notes on any ***two*** of the following : *2×7=14*

(a) Ductility property of mild steel

(b) Effects of temperature in structures

(c) Use of models for the study of behaviour of structures