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BAR-004

BACHELOR OF ARCHITECTURE (B.Arch.)

Term-End Examination

00362

December, 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.*

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

(a) Live loads

(i) change their position frequently

(ii) do not change their position

(iii) are normally taken to be wind loads

(iv) None of the above

(b) A propped cantilever has

(i) one end fixed and the other free

(ii) both ends fixed

(iii) one end fixed and the other roller supported

(iv) one end hinged and the other roller supported

(c) Force/Area is termed as

(i) Modulus

(ii) Stress

(iii) Strain

(iv) None of the above

(d) How many reactions does a fixed support in a space structure have ?

(i) 4

(ii) 3

(iii) 5

(iv) 6

(e) Modulus of rupture is a measure of

(i) Direct compressive strength

(ii) Direct tensile strength

(iii) Flexural tensile strength

(iv) Flexural compressive strength

(f) Force required for unit displacement is known as

(i) Stress

(ii) Strength

(iii) Stiffness

(iv) Flexibility

(g) Maximum Bending Moment in a beam occurs when

(i) Shear force is maximum

(ii) Deflection is zero

(iii) Shear force is minimum

(iv) None of the above

2. (a) Write any two important functions of a structure. Explain them briefly. 7

(b) Draw a neat sketch of a hinged support. Explain briefly the characteristics of this support. 7

3. (a) Discuss briefly the objectives of analysis for a typical structure. 7

(b) Discuss briefly the importance of stiffness in a structure. 7

4. (a) Enumerate primary elements. Discuss the behaviour of two primary elements in a typical structure. 7

(b) Discuss briefly the factors affecting strength in a structure. 7

5. (a) Discuss the various requirements of stability for a typical structure. 7

(b) Explain shear stresses. Discuss their occurrence in a structure. 7

6. (a) Explain why foundations are needed for buildings. 7

(b) Define temperature loads. Discuss briefly their effect in a structure. 7

7. (a) Define Modulus of Elasticity. Explain how it is calculated. 7

(b) Define factor of safety. Write down any two factors affecting it. 7