

Code : 011303

(2)

B.Tech 3rd Semester Exam., 2017

BUILDING SCIENCE

Time : 3 hours

Full Marks : 70

Instructions :

- (i) The marks are indicated in the right-hand margin
- (ii) There are **EIGHT** questions in this paper.
- (iii) Attempt **FIVE** questions in all.
- (iv) Question No. 1 is compulsory.

1. Choose the correct option of the following
(any seven) : $2 \times 7 = 14$

- (a) The number of bricks required per cubic meter of masonry is
 - (i) 400
 - (ii) 450
 - (iii) 500
 - (iv) 550
- (b) Ultrasonic pulse velocity method is used to determine
 - (i) compressive strength of concrete
 - (ii) impact resistance of concrete
 - (iii) tensile strength of concrete
 - (iv) quality of concrete

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(Turn Over)

(c) Which of the following is not an accelerator?

- (i) CaCl_2
- (ii) CaSO_4
- (iii) Nacl
- (iv) Formaldehyde

(d) Neoprene is suitable for use in

- (i) bearings of bridges
- (ii) hard duty rubber coatings of floors
- (iii) joinery works
- (iv) floors of dance hall

(e) Which of the following materials is not used in the making of geosynthetics?

- (i) Nylon
- (ii) PVC
- (iii) Polypropylene
- (iv) Ceramics

(f) Pieces of stones are called

- (i) ballast
- (ii) spalls
- (iii) crushed stone
- (iv) None of the above

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(Continued)

(3)

(g) A first-class brick when immersed in cold water for 24 hours should not absorb water more than

- (i) 15%
- (ii) 20%
- (iii) 22%
- (iv) 25%

(h) The maximum number of steps in a flight should generally be restricted to

- (i) 10
- (ii) 12
- (iii) 15
- (iv) no limit

(i) The lower edge of the pitched roof, from where the rainwater of the roof surface drop down, is known as

- (i) hip
- (ii) gable
- (iii) ridge
- (iv) eaves

(j) The maximum total settlement for isolated foundations on clayey soils should be limited to

- (i) 25 mm
- (ii) 40 mm
- (iii) 65 mm
- (iv) 100 mm

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(4)

2. (a) Define creep. What are its advantages and disadvantages? 5

(b) What is shrinkage? What factor promotes shrinkage? What precautions will you take to reduce it? 5

(c) Discuss briefly the various factors affecting the workability of concrete. 4

3. (a) What are the qualities would you look for in good building stone for masonry work? 4

(b) What are the tests to which a stone should be subjected before it is selected for building purposes? 4

(c) Name the various bonds used in brickwork. How does English bond differ from Flemish bond? 6

4. (a) What are different varieties of Indian stone used in construction work? 7

(b) What are the general principles observed in brick masonry? 7

5. Classify different buildings as per National Building Code of India. Enumerate and discuss. 14

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(5)

6. (a) What are the various types of loads coming on a structure? Distinguish between live loads and dead loads. 7
- (b) Explain in brief about various characteristics of sound, as applicable to the acoustic design of a room. 7
7. (a) What do you understand by (i) ventilation and (ii) air-conditioning? Explain the necessity of each. 7
- (b) What do you understand by shallow foundation? Draw sketches to show various types of shallow foundations. 7
8. (a) Compare between the merits and demerits of flat and pitched roofs. 7
- (b) What do you understand by scaffolding? What are the essential requirements? What are the component parts of a scaffold? 7

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8AK—2170/18