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Total number of printed pages – 3

B. Tech
PCCE 4203

Third Semester Regular Examination – 2014
BUILDING MATERIALS AND BUILDING CONSTRUCTION
BRANCH : CIVIL

QUESTION CODE : H 385

Full Marks – 70

Time : 3 Hours

Answer Question No. 1 which is compulsory and any five from the rest.

The figures in the right-hand margin indicate marks.

1. Answer the following questions : 2 × 10
- How many standard sizes of bricks will be required for 1 cubic meter of brick masonry ?
 - What chemical changes take place during the process of setting of cement ?
 - What are the points to be kept in mind while proportioning the various ingredients of cement concrete ?
 - Among the Indian stones, which one is the best ? What is its chemical composition ?
 - Why the foundation of a structure is laid below the ground surface ? When and why a pile foundation is recommended ?
 - What is a bond ? Name various types of bonds generally used.
 - In a newly constructed institution, one wall of the laboratory remains wet, what are the various possibilities to keep it dry ?
 - What are the demerits of a terrazzo floor ?
 - What do you mean by friction piles ? How they take load ?
 - What do you mean by pitch of a stair ? What is its limit ? Why ?

P.T.O.

2. (a) How would you classify the bricks as they are obtained from a kiln ? Describe in brief the characteristics of each and state where they are used. How would you justify that jamma or over-burnt bricks are even stronger than the first class bricks? 5
- (b) You are given five samples of following stones: Granite, Limestone Sandstone, Marble and Kankar. How can you identify them ? Name various laboratory tests performed on a stone. 5
3. (a) What do you understand by workability and consistency of concrete ? How the consistency of a concrete sample can be measured ? 5
- (b) What do you mean by grade of concrete ? What is 'Mix Design' ? What is the difference between mix-design and nominal mix ? What is the importance of water-cement ratio in mix-design ? Explain in brief. 5
4. (a) What is integral water proofing ? How is it constructed ? Explain with sketches. 5
- (b) Write short notes on : 5
- (i) Balustrade
 - (ii) Spandril
 - (iii) Winders
5. (a) Discuss how the following materials are used in the construction of floors : 5
- (i) Linoleum
 - (ii) Rubber
 - (iii) Cork
 - (iv) Clay lips
 - (v) Slate
- (b) What are the common defects of plastering ? What are their causes and remedies ? Discuss in brief. 5
6. (a) What are various types of joints commonly used in cement concrete constructions ? Describe four types of such joints with neat sketches. 5

- (b) When and where a well foundation is recommended ? Sketch a well foundation showing all its component parts on it. What are various possible forces on a well foundation ? Discuss in brief. 5
7. (a) Discuss various causes of cracks in building. How these should be removed ? 5
- (b) Discuss in brief under what conditions the following types of stairs are provided. 5
- (i) Quarter-turn stair
 - (ii) Dog-legged stair
 - (iii) Geometric stair
 - (iv) Bifurcated stair
 - (v) Spiral stair
8. Explain the following in brief : 5×2
- (a) Tuck-pointing
 - (b) Random rubble masonry
 - (c) terrazo
 - (d) Cavity walls
 - (e) Newel post.

