

**Code : HSMC-251 (101306)**

( 2 )

**B.Tech 3rd Semester Special  
Exam., 2020  
( New Course )**

**INTRODUCTION TO CIVIL ENGINEERING**

Time : 3 hours

Full Marks : 70

**Instructions :**

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

1. Choose the correct answer of the following  
(any seven) : 2×7=14

~~(a)~~ In surveying, the measurement are taken in

- (i) vertical plane
- (ii) inclined plane
- ~~(iii)~~ horizontal plane
- ~~(iv)~~ vertical and horizontal planes

~~(b)~~ The depth of excavation for foundation is usually checked with

- (i) tape
- (ii) ranging rod
- (iii) levelling staff
- ~~(iv)~~ boning rod

(c) Which of the following can be used for flooring?

- (i) Stone
- (ii) Concrete
- (iii) Brick
- ~~(iv)~~ All of the above

(d) The smallest length that can be drawn on a map is

- (i) 0.2 mm
- (ii) 0.6 mm
- (iii) 1 cm
- (iv) 1.2 cm

~~(e)~~ The scale on which three dimensions can be measured is known as

- (i) plain scale
- ~~(ii)~~ diagonal scale
- ~~(iii)~~ chord scale
- (iv) vernier scale

( 3 )

~~(f)~~ Traffic sign indicating speed limit is categorized in

(i) regulatory sign

(ii) warning sign

(iii) informatory sign

~~(iv) prohibitory sign~~

~~(g)~~ To define grade of concrete, which characteristic is used?

(i) Tensile strength

~~(ii) Compressive strength~~

(iii) Density

(iv) None of the above

~~(h)~~ The compass box is made-up of

(i) iron

(ii) aluminium

~~(iii) brass~~

(iv) steel

( 4 )

(i) What is the recommended size of a brick?

(i) 20 cm × 10 cm × 10 cm

~~(ii) 20 cm × 9 cm × 9 cm~~

~~(iii) 19 cm × 9 cm × 9 cm~~

~~(iv) 19 cm × 8 cm × 8 cm~~

~~(j)~~ What is the most dominant constituent of cement?

(i) Silica

~~(ii) Lime~~

~~(iii) Magnesia~~

(iv) Alumina

~~2.~~ Write short notes on the following : 7+7=14

(a) Role of civil engineers

(b) Importance of interdisciplinary approach in the development of infrastructures

3. (a) What are the basic components of a building? Discuss the main requirements of each part to fulfil its primary function. 7

(b) Write a short note on energy efficiency in planning of building. 7

( 5 )

4. (a) What are the various uses of stones and bricks in construction? Why is nowadays popularity of stone as building material going down? 7
- (b) Discuss whether concrete rubble and crusher dust can be used in making fresh concrete. Highlight their advantages and disadvantages. 7
5. (a) What is substructure? Discuss various functions of foundations. 7
- (b) Write short notes on the following : 7
- (i) Combined footings for RC columns
- (ii) Grillage foundation
6. (a) Differentiate between plan and map. 7
- (b) Explain the principles of surveying. 7
7. (a) Give a brief note on different transportation systems. 7
- (b) Explain design loads acting on a building. 7

( 6 )

8. (a) Which are the principles of planning? Explain privacy and circulation in detail. 7
- (b) Give details of different construction methods for various types of structure. 7
9. (a) Write a note about entrepreneurial possibilities in civil engineering. 7
- (b) Write a note on application of SAAD Pro in design of civil engineering structures. 7

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