

BCET- 302

Roll No.

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Odd Semester Examination, 2019-20

B. Tech: Civil (3rd Semester)

Construction Material

Time: 3:00 hrs.

M.M:100

Total no. of printed pages: 2

Note : (i) Attempt ALL questions.

(ii) Assume any missing data suitably.

1. Attempt any four of the following

4X5=20

- What do you understand by elongation index and flakiness index .write the suitable test for both?
- Explain by sketches, the difference between English bond, Double Flemish bond and single Flemish bond?
- Explain the Progressive kiln seasoning of the Timber?
- Write a short note on :
 - Ready mix concrete
 - Self-compacting concrete
 - High strength concrete and HPC.
- State on the composition and position of refractory bricks?
- Write short notes on concrete mix deign.

2. Attempt any four of the following

4X5=20

- What are the various tests which can be performed on the cement? ✓
- Describe the characteristic of good stones and any two tests for stones?
- What do you mean by Workability? What are the various factors affecting workability?
-How it can be measured?
- What are the advantages and disadvantages of concrete block masonry over brick masonry?
- What is distemper? How it is prepared? Give the use of distempers?
- Describe the characteristics of bricks based on engineering properties.

P.T.O

3. Attempt any two of the following:

2x10=20

- a) What are the different constituents of an oil paint? Describe briefly how each one of the constituent acts in imparting the desired qualities to finished material?
- b) A bungalow with open verandah and flat roof is to be constructed in Uttarakhand. Write briefly about the construction materials you specify for the following parts of the building giving reasons for your choice:
 - i) Foundation
 - ii) Superstructure masonry with pillar
 - iii) Lintel
 - iv) Roof
 - v) Floor.
- c) List the various tests you would like to perform on building bricks. Describe the test for Water absorption indicating the standards?

4. Attempt any two of the following

2X10=20

- a) Explain how sulphate resisting cement and rapid hardening Portland cement differ from OPC and specific circumstances in which these cements would be used?
- b) Which are the four important formed during the setting action of cement? Mention their relative proportions expressed as percentages and also function of these compounds.
- c) Describe the defects of timber with the help of neat sketch?

5. Attempt any two of the following.

2X10=20

- a) Describe the hydrate on of Portland cement and outline the ways in which the Vicat apparatus and the Le-Chatelier apparatus can be used to assess the properties of fresh and hardened pastes?
- b) What is non – destructive testing of concrete? What are its relative merits? Name methods of non-destructive testing and explain briefly anyone method?
- c) Calculate the quantities of cement, sand and coarse aggregate required to produce one cubic meter of concrete for mix proportion of 1 : 1.40 : 2.80 (by volume) with cement ratio of 0.48 (by mass). Bulk densities of cement, sand and coarse aggregates are 14.7, 16.66 and 15.68 kN/m³ respectively percentage air 2.0. specific gravity of cement, sand and coarse aggregate are 3.15, 2.6 and 2.5 respectively.