

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- SEMESTER-III (NEW) EXAMINATION – WINTER 2020****Subject Code:3134002****Date:09/03/2021****Subject Name:Building Materials & Construction Technology****Time:10:30 AM TO 12:30 PM****Total Marks:56****Instructions:**

1. Attempt any FOUR questions out of EIGHT questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

	Marks
Q.1 (a) Enlist various types of building as per national building code.	03
(b) With neat sketches, describe “Flemish of bond” in brick masonry.	04
(c) Discuss “Underpinning of foundation” in detail, with neat sketch.	07
Q.2 (a) Enlist the characteristics of a good formwork.	03
(b) Differentiate between G.I. and A.C. Sheets for roof covering used in pitched roofs.	04
(c) With neat sketches discuss the various components of a King Post Roof Truss	07
Q.3 (a) Explain the meanings of the following designations as recommended by the BIS: (i) 12 DT 21 (ii) 10 WT 13 (iii) 12 V 6	03
(b) Write explanatory note on “Whitewashing”.	04
(c) Discuss the classification of arches on the basis of the number of centres.	07
Q.4 (a) Explain any three of the following technical terms: (i) Skewback (ii) Spandril (iii) Haunch (iv) Intrados	03
(b) What are the various considerations for planning of stairs for Hospital buildings? Give details.	04
(c) Explain any two of the following types of windows with a neat sketch: (i) Skylight window (ii) Pivoted window (iii) Dormer window.	07
Q.5 (a) What are the different safety gears to be used at construction site?	03
(b) Describe any two green building materials.	04
(c) Draw a neat sketch of Reinforced Cement Concrete stair and explain it in detail.	07
Q.6 (a) What do you understand by sustainability? Explain.	03
(b) How to prevent fire hazards at construction site.	04
(c) Enumerate the defects found in plastering work and suggest the remedies to avoid such defects.	07
Q.7 (a) Define : (i) Floor Space Index (ii) Set-back (iii) Site plan	03
(b) Draw a section through wall for one storey load bearing structure which shows major building components	04
(c) Enlist the different principles of building planning. Describe them briefly.	07

Q.8

A 3m high brick column having a cross-section of 500 mm × 500 mm carries an imposed axial load of 350 kN. Determine the total load on the foundation, including the weight of column, load of brick footings and load of concrete block. Take the weight density of brick masonry as well as of lime concrete to be 18 kN/m³. Design a suitable foundation for the brick column, considering the allowable bearing capacity, the weight density and the angle of repose of the soil to be 200 kN/m², 15 kN/m³ and 30°, respectively. Consider the modulus of rupture of lime concrete to be 150 kN/m².

14

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