

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– III (New) EXAMINATION – WINTER 2019

Subject Code: 3134002

Date: 26/11/2019

Subject Name: Building Materials & Construction Technology

Time: 02:30 PM TO 05:00 PM

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

		Marks
Q.1	(a) Enlist the various types of Assembly Buildings as per NBC classification.	03
	(b) Briefly discuss “Ashlar Chamfered Stone Masonry” with neat sketches.	04
	(c) What do you understand by foundation? Briefly explain foundation in black cotton soil.	07
Q.2	(a) Write advantages of modern formwork.	03
	(b) Write a short note on epoxy flooring.	04
	(c) With neat sketches discuss the various components of a Queen Post Roof Truss	07
	OR	
	(c) Which flooring material would you use in each of the following conditions (Justify your answer briefly)	07
	(i) A MIG residential dwelling located in the state of Assam	
	(ii) The reception lobby of a 5-star hotel located in Delhi	
Q.3	(a) Define any three of the following terms (i) Jamb (ii) Reveal (iii) Rebate (iv) Holdfast	03
	(b) Write short explanatory note on “Damp Proof Course”.	04
	(c) Draw a neat, labelled figure of semi-circular arch and explain in short the various components.	07
	OR	
Q.3	(a) What do you understand by Lintels? Draw neat sketch of R.C.C. Lintel.	03
	(b) Explain step by step procedure of designing of dog legged staircase.	04
	(c) Discuss factor affecting the selection of size, shape and location in a structure.	07
Q.4	(a) Which safety measures will you be suggest in case of high rise building construction site in crowded area?	03
	(b) Describe advantages of Green Building materials?	04
	(c) Define circulation. State modern means of circulation. Explain any one.	07
	OR	
Q.4	(a) Write short note on “Eco friendly materials”.	03
	(b) Enlist the seven safety precautions you will take on construction site.	04
	(c) Mention the objectives of painting and point out characteristics of an ideal paint.	07

- Q.5 (a) What are building bye laws? Explain their purpose. **03**
(b) Discuss the importance of orientation for planning of a building? **04**
(c) Explain the primary differences between a load bearing and a framed structure. Illustrate through the plan and elevation of a one storeyed structure. **07**

OR

- Q.5 Design the strip foundation for a two-storeyed residential building for the following details: **14**

Building:

Total width of the building: 8 m

Height of each floor: 3 m

Thickness of RCC slab on each floor: 150 mm

Thickness of brick wall above plinth level: 300 mm

Span of RCC slab: 4 m

Height of plinth: 600 mm above, and 300 mm below the ground level

Material Properties:

Modulus of rupture of lime concrete (m): 154 kN/m^2

Weight density of brick masonry: 18 kN/m^3

Weight density of RCC: 24 kN/m^3

Weight density of soil: 13 kN/m^3

Angle of repose of the soil: 30°

Allowable bearing capacity of soil at a depth of 1.2 m from ground level: 130 kN/m^2

Loads:

Live Load on slab: 3 kN/m^2

Load of floor finish: 0.5 kN/m^2
