

**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.

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

- 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):  $154 \text{ kN/m}^2$

Weight density of brick masonry:  $18 \text{ kN/m}^3$

Weight density of RCC:  $24 \text{ kN/m}^3$

Weight density of soil:  $13 \text{ kN/m}^3$

Angle of repose of the soil:  $30^\circ$

Allowable bearing capacity of soil at a depth of 1.2 m from ground level:  $130 \text{ kN/m}^2$

*Loads:*

Live Load on slab:  $3 \text{ kN/m}^2$

Load of floor finish:  $0.5 \text{ kN/m}^2$

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