U.S.N.										

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

August 2024 Supplementary Examinations

Programme: B.E. **Semester: V**
Branch: Civil Engineering **Duration: 3 hrs.**
Course Code: 20CV5PEABM **Max Marks: 100**
Course: Alternative Building Materials and Technologies

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

UNIT - I

1 a) Bring out the environmental issues that are caused by any four of the building materials which are of concern to the society. **12**

b) Calculate the total Embodied Energy of the circular reinforced concrete column with the data as shown below. **08**
Length of the RC column = 3.0 m
Diameter of the RC column = 300 mm
Diameter of the steel rods = 10 mm
No. of reinforcing steel rods = 4
Density of steel = 7850kg/cum
EE of RC concrete = 2222.45 MJ/cum
EE of steel rod = 42 MJ/kg

UNIT - II

2 a) Prepare a table showing the dimensions, compressive strength, density and water absorption for the following masonry units. State the advantages of each of the masonry units. **12**
i) Laterite blocks
ii) FAL- G blocks
iii) Hollow clay blocks
iv) Concrete blocks

b) Explain in detail the production process of stabilized mud blocks. **08**

UNIT - III

3 Explain the salient features and applications for the following waste materials. **20**
i) Rice Husk Ash
ii) Bagasse Ash
iii) Pond ash
iv) Iron ore tailings
v) C&D waste

OR

4	a)	A 2-storeyed load-bearing brick masonry building is demolished in Bellary district of Karnataka. There is a thermal plant in the same region. The contractor is interested to use only locally available resources to construct the new building. Suggest the various measures that can be adopted for the project.	**10**
	b)	Bring out any five characteristics of lime-pozzolana cement and Ordinary Portland cement.	**10**

UNIT - IV

5	a)	Sketch the cross-section of a typical ferrocement element. Also, discuss the various materials that are used in it.	**12**
	b)	Briefly explain the constituent materials in the matrix of a typical fibre reinforced concrete element.	**08**

UNIT - V

6	a)	What is a roofing system? Explain the two types of roofing systems along with typical examples for each with simple sketches.	**12**
	b)	Sketch, label and discuss the construction process of a typical masonry vault.	**08**

OR

7		Sketch and explain the following. i) Filler Slab roofs ii) Composite Beam and Panel roof iii) Pre-cast wall and roof iv) Jack-arch roof	**20**

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