

B.E. CONSTRUCTION ENGINEERING FOURTH YEAR SECOND SEMESTER EXAM 2023

SUBJECT: ALTERNATIVE MATERIALS AND SUSTAINABLE CONSTRUCTION (HONS.)

Time : Three hours

(50 Marks for each Part)

Full Marks : 100

Use separate answer script for each Part

PART I (50 Marks)

Instructions:

1. Answer **Q1** and any **FOUR** questions from Q2 to Q7.
2. Illustrate your answers with neat sketches wherever necessary.
3. Figures to the right indicate full marks.
4. Assume suitable data if necessary.
5. Preferably, write the answers in sequential order

- Q1. Explain sustainable development. Draw a schematic diagram of material flow in the building ecosystem. Mention the key sustainable initiative that should be considered at the outset of any construction project. (14)
- Q2. Enumerate the concept of Zero-Energy Buildings. (9)
- Q3. Enumerate the concept of Green Buildings. (9)
- Q4. Bamboo: A Sustainable and Low-Cost Housing Material-Justify in detail. (9)
- Q5. (a) Discuss in details the future potential of low carbon materials and their uses in construction industry.
- (b) What are the key benefits of introducing low carbon construction materials making reference to specific examples? (4.5+4.5)
- Q6. How RAP can be used as alternative material in construction industry. (9)
- Q7. Analyze the role of lignin and lignin-based materials in sustainable construction. (9)

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Alternative materials and sustainable construction (HONS)

B.E Construction Engineering 4th year 2nd semester examination -2023

Part-II (50 Marks)

Answer any two questions .

Q-1 (a) Discuss the challenges in clay brick manufacturing process . (8)

(b) Illustrate your concept of energy efficient brick manufacturing in Bengal. (8)

© Discuss the significance of using C & D waste in cement concrete .(9)

Q-2 (a) Define the objectives of lime soil stabilization. (5)

(b) In which type of soil lime stabilization is found more effective and why ? (5)

(c) Why lime is preferred as construction material for repair of old masonry structures. (7)

(e) Why hydraulic lime is characteristically different than non hydraulic lime. (8)

Q-3 (a) Discuss advantage and limitations of using waste plastic as modifier and binder in bituminous mix. (10)

(b) Discuss different functions of jute geo textile when used in road pavement construction . (10)

(c) Specify the depth up to which use of jute geotextile can be used in ground improvement for placing shallow foundation. (5)