

11/01/2023

Reg. No.

Question Paper Code

11610

**B.E. / B.Tech. - DEGREE EXAMINATIONS, NOV/DEC 2022**

Fifth Semester

**Civil Engineering**

**20CEPC505 - SUSTAINABLE URBAN INFRASTRUCTURE DEVELOPMENT**

(Regulations 2020)

Duration: 3 Hours

Max. Marks: 100

**PART - A (10 × 2 = 20 Marks)**

Answer ALL Questions

- |                                                                                           | <i>Marks,<br/>K-Level, CO</i> |
|-------------------------------------------------------------------------------------------|-------------------------------|
| 1. Specify the need for sustainable development of infrastructure.                        | 2,K2,CO1                      |
| 2. Describe the role of planners in ensuring the sustainable planning.                    | 2,K2,CO1                      |
| 3. What is urban design?                                                                  | 2,K1,CO2                      |
| 4. Describe the term "Cost Cutting of housing Infrastructure".                            | 2,K2,CO2                      |
| 5. Define the UN goals for sustainable development related to construction practices.     | 2,K1,CO3                      |
| 6. Describe the principle of sustainable development.                                     | 2,K1,CO3                      |
| 7. What is globalization?                                                                 | 2,K1,CO4                      |
| 8. List out the various green house gases in the atmosphere.                              | 2,K1,CO4                      |
| 9. Mention the national and international scenario of advancements using green buildings. | 2,K1,CO5                      |
| 10. List out the materials used for the construction of green buildings.                  | 2,K1,CO5                      |

**PART - B (5 × 13 = 65 Marks)**

Answer ALL Questions

- |                                                                                                                                                                                                 |           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| 11. a) (i) With a neat sketch, explain the elements (3 E's) of sustainable development.                                                                                                         | 5,K2,CO1  |
| (ii) Explain the issues and solutions related to sustainable development.                                                                                                                       | 8,K2,CO1  |
| <b>OR</b>                                                                                                                                                                                       |           |
| b) With the neat sketch, explain the environmental impact of sustainable development in building sectors.                                                                                       | 13,K2,CO1 |
| 12. a) With a case study, elaborate the concept of innovative building materials used for the development of rural/urban housing. Also, list the type of such materials available commercially. | 13,K2,CO2 |
| <b>OR</b>                                                                                                                                                                                       |           |
| b) Write a note on Urban Design.                                                                                                                                                                | 13,K2,CO2 |

*K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create*

**11610**

13. a) Write notes on Low cost construction techniques used at present. 13,K2,CO4

**OR**

b. (i) Discuss about the urbanization trend in developed and developing countries with neat sketches. 8,K2,CO4

(ii) Explain the features of vernacular architecture with an example. 5,K2,CO4

14. a) With the case study, explain the components of a green building. Specify the different types of materials used to achieve energy reduction in buildings. 13,K2,CO5

**OR**

b. Write down the Design principles of a green building. 13,K2,CO5

15. a) With a neat sketch, provide a detailed description on the recent developments on sustainable building developments. 13,K2,CO3

**OR**

b) (i) Explain the check list to be followed for sustainability. 6,K2,CO3

(ii) What are the barriers in the implementation of sustainable building measures? 7,K2,CO3

**PART - C (1 × 15 = 15 Marks)**

16. a) (i) Differentiate LEED certification and green globe certification. 7,K2,CO6  
(ii) With a neat flowchart, explain the design principles used for achieving energy reduction with green buildings. 8,K2,CO6

**OR**

b) Describe the tools used for the certification of green buildings at the national and international scenario. Use illustrations wherever essential. 15,K2,CO6