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SLIATE

SRI LANKA INSTITUTE OF ADVANCED TECHNOLOGICAL EDUCATION

(Established in the Ministry of Higher Education, vide in Act No. 29 of 1995)

Higher National Diploma in Engineering (Civil)

1st Year, 2nd Semester Examination – 2016

CE 1203 – Fundamental of Civil Engineering and Material

Instruction for candidates

1. This question paper consists of 03 pages including this page.
2. There are five (5) questions.
3. Answer four (4) questions and each question carries equal marks.
4. The marks for sub – questions are given by the side.

Time: Two (02) hour

(01) Construction materials play a major role in construction industry in the country. Explain briefly following relative to this statement.

- | | |
|-------------------------------------|------------|
| I. Concrete | (02 Marks) |
| II. Reinforcement | (02 Marks) |
| III. Formwork | (02 Marks) |
| IV. Stress and Strain | (02 Marks) |
| V. Young's Modulus | (02 Marks) |
| VI. Crushing Strength | (02 Marks) |
| VII. Elastic Behaviours | (02 Marks) |
| VIII. Hardness | (02 Marks) |
| IX. Fine aggregate | (02 Marks) |
| X. OPC | (02 Marks) |
| XI. R.H.P.C. | (02 Marks) |
| XII. Field test carried out for OPC | (03 Marks) |

(02) Bubble diagram can be applied as a tool of planning stage of building construction. Detail study of a typical domestic building project is very much essential to satisfy the customer requirements

- I. What do you mean by “Bubble diagram” and “Detail Study of typical domestic building project” (04 Marks)
- II. What are the customer requirements of domestic building (04 Marks)
- III. Explain briefly following relative to domestic building construction.
 - a. Structural Elements
 - b. Setting out of foundation
 - c. Difference between Structural and Architectural drawing
 - d. Sub structure and Superstructure of a building (08 Marks- 02 for each.)
- IV. Soil investigation is very important activity in design of foundation for multi-story buildings. Explain why it is very important (04 Marks)
- V. Utility services are very much essential for domestic buildings. Briefly explain what are the main utilities and modern utilities essential for domestic building. (05Marks)

(03) Modern world face several environmental issues mainly due to urbanization and industrialization. This is caused to unbalance the Eco-system, changes in food chains. Green Energy application is best way to minimize environmental issues. EIA (Environmental Impact Assessment) is needed before implementation of any project.

- I. Briefly, explain the Environment and EIA (04 Marks)
- II. What is meant by Eco System? What are the facts caused to unbalance the Eco System? (04 Marks)
- III. Explain how does affect the change of food chain to human health. (04 Marks)
- IV. What are the feasibility studies to be carried out at the initiation of the civil engineering project (04 Marks)

V. What do you mean by “Green Energy Application” in urbanization? (04 Marks)

VI State five common applications of green technology. (05Marks)

(04) Ancient Sri Lanka has historical records relative to the high standards civil engineering works and still exists for services. Irrigation and Building construction are very famous in the world. Architectural and aesthetic views of these structures are given historic values to the Nation.

I. Give five examples for above statement. (05 Marks)

II. What are the main components of Irrigation Tank? Explain with sketch. (05 Marks)

III. What types of material were used in construction of “Sigiriya” and “Dalada Maligawa” (05 Marks)

IV. Ancient Sri Lanka, cities like Anuradhapura and Polonnaruwa were planned with “Wewa” and “Dagaba” concept. Explain this concept in civil engineering point of view? (05 Marks)

V. What are main consideration of planning and design of Irrigation Tank for using agricultural and domestic water requirements? (05 Marks)

(05)

Economic Development in a Country is mainly depending on availability of infrastructure facilities. Sustainable development can be achieved through proper planning design and construction of infrastructure project. Rapid urbanization and Industrialization are caused to environment pollution and need proper waste management system for better health of the people.

I. What are the main infrastructures facilities needed people for good living standard? (04 Marks)

II. Briefly explain two of them. (04 Marks)

III. What is the meaning of sustainable development? (04 Marks)

IV. Explain briefly environment pollution. (04 Marks)

V. Name three Natural resources Polluted due to urbanization and industrialization (04 Marks)

VI Explain different modes of transporting and their benefits. (05 marks)