

Register No.: Name:

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

THIRD SEMESTER B. TECH DEGREE EXAMINATION (R,S), DECEMBER 2023

COMMON TO ALL BRANCHES

(2020 SCHEME)

Course Code : 20MCN201

Course Name: Sustainable Engineering

Max. Marks : 50

Duration: 2 Hours

PART A

(Read the Stories/Cases/Data set as the case may be, and answer ALL questions. Each FULL question carries 10 Marks)

1. List the millennium development goals and sustainable development goals. Explain their significance with various projects. (10)
2. Explain carbon footprint and the technologies used to reduce carbon footprint. (10)
3. A dam is planned to construct across a river in a forest area. Vast amount of forestland is expected to be cleared during the construction. Due to the loss of their natural habitat, the animals and tribes will start to move away which results in the loss of biodiversity. Dams also affect the water quality of the rivers and reduces the flow of water as well. This in turn affects the fish and other animals that live in and around the river. (10)
 - i) Conduct an environment impact assessment for the above-mentioned project and outline the summary.
 - ii) Discuss the steps involved in environment impact assessment.
4. Explain the process of energy generation from ocean and wind with suitable example. (10)
5. Green building represents the response of the building sector to the need to minimize negative environmental, social and economic impacts in the building sector. Through using green building practices, it is possible to work toward the aim of meeting the needs and aspirations of today without compromising the ability of future generations to meet their own needs. To achieve a green building, green design and construction strategies should be incorporated at the planning stage to the demolition phase of the building. A green building relies upon a fully integrated “whole building” approach that covers the entire phase of building cycle including design, construction, operation and demolition. Multiple (10)

studies have demonstrated how green buildings that incorporate green building practices offer benefits. For example, they can help mitigate building issues and problems, including environmental problems associated with existing buildings, and also provide healthier indoor environments to building users.

- i) Outline the methods for increasing the energy efficiency in green buildings.
- ii) Explain the concept of green engineering and sustainable transport.
- iii) Describe how green buildings contribute to achieve sustainable development goals.
