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The Assam Royal Global University, Guwahati
Royal School of Engineering & Technology
M. Tech 2nd Semester (Structural Engineering)
Semester End Examination, June 2023
Course Title: Advanced Concrete Technology
Course Code: CEE024C20S5

Time: 3 Hours

Maximum Marks: 70

Note: Attempt all questions as per instructions given

The figures in the right hand margin indicate marks

SECTION –A

Q.1. Attempt **all questions** (maximum word limit 50):

2 x 8= 16

- What is grouting?
- What is hydration of cement? Explain.
- Name some chemical admixtures.
- What do you mean by supplementary cementing materials?
- What are the grades of concrete?
- What do you mean by target strength in mix design of concrete?
- Write examples of high performance concrete.
- Define initial and final setting time of cement.

SECTION-B

Q. 2. Attempt **any two** of the following:

6 x 2= 12

- Explain the process of heat of hydration with necessary chemical equations.
- Write a note on various types of cement.
- Explain various testing methods of coarse aggregates.

Q.3 Attempt **any two** of the following:

7 x 2= 14

- Describe various function of accelerators and retarders in civil engineering.
- Write a note on Granulated blast furnace slag
- Explain the effect of air entrainment on the properties of concrete.

Q.4. Attempt **any two** of the following:

7 x 2= 14

- Design a M25 grade concrete mix having a slump of the order of 100 mm for a structure. Use IS:10262 – Indian Standard recommended guidelines to estimate preliminary mix proportion. Consider severe exposure conditions. (Assume all other data)
- Explain the BIS method of Mix-Design using examples.
- Distinguish between design mix and nominal mix.

Q.5. Attempt **any one** of the following:

14 x 1=14

- Write a note on: i) Fibre reinforced concrete
ii) Self compacting concrete
- Explain the factors which cause variations in the quality of concrete.