

Total No. of Questions : 10]

SEAT No. :

P3289

[5461]-506

[Total No. of Pages : 2

B.E. (Civil)

ADVANCED CONCRETE TECHNOLOGY

(2015 Pattern) (End Sem.) (Elective - I) (401004C) (Semester - I)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8, Q.9 or Q.10.
- 2) Neat diagrams must be drawn wherever necessary.
- 3) Figures to the right indicate full marks.
- 4) Your answers will be valued as a whole.
- 5) Use of electronic pocket calculator is allowed.
- 6) Assume suitable data if necessary.
- 7) Use of IS code 10262, 456 is not allowed.

- Q1)** a) Write short note on gel-space ratio. [4]
b) Explain in brief the comparison between natural river sand and manufactured sand used in making concrete. [6]

OR

- Q2)** a) What is mean by green concrete? State the various materials used in green concrete. [4]
b) What are the guideline for quality control and quality assurance of concrete? How to check the quality of concrete in fresh and hardened state? [6]

- Q3)** a) Compare the high performance concrete and High strength concrete with respect to material, mechanical properties and elastic properties. [4]
b) Write short note on [6]
i) Pervious concrete
ii) Vacuum concrete

OR

- Q4)** a) State advanced non-destructive testing methods. Explain any one in details. [4]
b) Explain step by step procedure to design the Self compacting concrete.[6]

- Q5)** a) Explain basic concept of Fibre reinforced concrete. Give examples of fibres suitable to improve [6]
i) flexural strength
ii) impact strength
iii) shear strength

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- b) Explain the behaviour of brittle fibre in brittle matrix and elastic fibre in brittle matrix. [6]
- c) Write short note on tensile behaviour of fibre reinforced concrete. [6]

OR

- Q6)** a) Explain the bending behaviour of fibre reinforced concrete. [6]
- b) Write short note on Steel fibre and Polypropylene fibres. [6]
 - c) What is the effect of aspect ratio of fibres on workability and strength. [6]

- Q7)** a) Explain the behaviour of GFRC under tension, compression and flexure. [6]
- b) What is SIFCON? Explain the procedure to develop this material and its applications. [6]
 - c) Explain interaction between fibre and matrix, un-cracked and cracked in flexure. [4]

OR

- Q8)** a) Explain the quality control test to be conducted on fibre reinforced concrete. [6]
- b) Explain the procedure to mix fibres in concrete. Why workability of concrete reduces with addition of fibres? [6]
 - c) Give the examples of naturally occurring fibres and their applications? [4]

- Q9)** a) Compare ferrocement construction with RCC construction with respect to material, handling, shape, density, strength and ductile behaviour. [6]
- b) Explain the step by step procedure to construct ferrocement elements like wall and water tank. [6]
 - c) Why rich mortar mix is used in the ferrocement construction? [4]

OR

- Q10)** a) Give the examples of precast concrete element available in market and its advantages and disadvantages with respect to on-site construction. [6]
- b) Explain close mould techniques of ferrocement construction. [6]
 - c) Explain the manufacturing process of industrial precast pipes. [4]

