Total No. of Questions : 10]

SEAT No. :

P3289

[Total No. of Pages : 2

[5461]-506

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]**

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