

B.Tech. (Civil Engineering) Seventh Semester (C.B.C.S.)
Open Elective-II : Civil Engineering Materials, Testing and Evaluation

P. Pages : 2

Time : Three Hours



PSM/KW/23/2848

Max. Marks : 70

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- Notes :
1. All questions carry marks as indicated.
 2. Solve Question 1 OR Questions No. 2.
 3. Solve Question 3 OR Questions No. 4.
 4. Solve Question 5 OR Questions No. 6.
 5. Solve Question 7 OR Questions No. 8.
 6. Solve Question 9 OR Questions No. 10.
 7. Due credit will be given to neatness and adequate dimensions.
 8. Diagrams and chemical equations should be given whenever necessary.
 9. Illustrate your answers whenever necessary with the help of neat sketches.
 10. Use of non programmable calculator is permitted.

1. a) Enlist the various usage of Sand, Cement, and Aggregate. 7
- b) Explain in short **any two**. 7
- i) Grouts.
 - ii) Clay Bricks.
 - iii) Glass Wool.

OR

2. a) Difference Between Wetting agents and Waterproof agent. 7
- b) Describe various types of Cements briefly. 7
3. a) Enlist the various basic properties of concrete. 7
- b) Explain in short **any two**. 7
- i) Nano- Particle.
 - ii) Composite material.
 - iii) Thermal conductivity.

OR

4. a) Discuss the properties of glass, wood, ceramics that are considered for selection of these materials. 7
- b) Explain the importance of nano materials in civil engineering construction. 7
5. a) Discuss the properties and application of AAC Blocks. 7
- b) Explain in short **any two**. 7
- i) Self- healing concrete.
 - ii) 3D printing.
 - iii) Photo catalytic admixture.

OR

6. a) What is FRC? Enlist the various type of fibers used in Concrete. 7
b) Explain in brief Self-Healing concrete. 7
7. a) Explain briefly equipment requirement, necessity of material testing. 7
b) Explain in short **any two**. 7
i) Ultra sonic pulse Velocity test.
ii) Importance of visual inspection of site.
iii) Testing procedure for bricks.

OR

8. a) Explain briefly importance of various Nondestructive testing of concrete. 7
b) Explain briefly various testing procedure for reinforcing steel bars. 7
9. a) State the various factors affecting selection of timber in view of quality control. 7
b) State the methods for interpretation of final result. 7

OR

10. Explain in details codal practices and guidelines in regards for **any four**. 14
i) Cement. ii) Aggregate.
iii) Timber. iv) Bitumen.
v) Concrete. vi) Asphaltic material.
