

**CONSTRUCTION MATERIALS AND TECHNOLOGY
(CIV2103)**

Time Allotted : 2½ hrs

Full Marks : 60

Figures out of the right margin indicate full marks.

*Candidates are required to answer Group A and
any 4 (four) from Group B to E, taking one from each group.*

Candidates are required to give answer in their own words as far as practicable.

Group – A

1. Answer any twelve:

12 × 1 = 12

Choose the correct alternative for the following

- (i) The water absorption capacity of bricks should not be more than
(a) 10% (b) 15%
(c) 20% (d) 30%
- (ii) Iron pyrites if present in excess quantity in brick earth, causes the bricks to
(a) Break irregularly (b) Split into pieces
(c) Become porous (d) None of the above
- (iii) Process of dividing a sample of aggregate into various fractions according to size is
(a) Abrasion test (b) Sieve analysis
(c) Absorption test (d) Compressive Test
- (iv) The timber in the form of a freshly felled tree which has not lost most of its moisture is called
(a) Green timber (b) Rough timber
(c) Standing timber (d) None of the above
- (v) The turning of timber tissues to almost a dry powder by fungi is known as
(a) Insect effect (b) Dry rot
(c) Wet rot (d) Cup shakes
- (vi) Which of the following type of foundation is suitable for cohesive soil with high load bearing capacity and load can be distributed over a wide area compared to other foundation types
(a) Pile foundation (b) Strip foundation
(c) Raft foundation (d) Pier foundation
- (vii) Which of the following piles is used for compacting loose granular soil
(a) End bearing pile (b) Tension pile
(c) Compaction piles (d) Friction piles

- (viii) In which type of bond, all the bricks are arranged in header courses
 (a) Header bond (b) Flemish bond
 (c) Dutch bond (d) Facing bond
- (ix) Which of the following is used to provide end support to the common rafters in a king-post truss
 (a) King post (b) Ridge beam
 (c) Queen post (d) Tie beam
- (x) A Stair turning through one right angle is known as a
 (a) Quarter-turn (b) Half-turn
 (c) Dog legged (d) Open Navel

Fill in the blanks with the correct word

- (xi) In _____ type of bond, all the bricks are arranged in stretcher courses.
- (xii) Cast-in-situ piles can be classified in to _____ classes.
- (xiii) Tricalcium aluminate helps _____ of cement.
- (xiv) The term _____ is used to denote the finishing of mortar joints of either stone masonry or Brick masonry.
- (xv) _____ is used to ensure that the thickness of plastering is uniform.

Group - B

2. (a) Explain the procedure for conducting the consistency test of cement. [[CO3](Understand/LOCQ)]
- (b) Write short notes on Rapid Hardening Cement and Portland Pozzolana Cement. [[CO4](Remember/LOCQ)]
- (c) What do you mean by initial and final setting time of cement? [[CO2](Apply/IOCQ)]
- 4 + (3 + 3) + 2 = 12**
3. (a) Explain along with a neat sketch the phenomenon of bulking of fine aggregate. [[CO3](Create/HOCQ)]
- (b) Explain Alkali-Aggregate reaction. Mention the factors that promote Alkali-Aggregate reaction. [[CO4](Remember/LOCQ)]
- 6 + (2 + 4) = 12**

Group - C

4. (a) Explain the different natural defects in timber. [[CO3](Evaluate/HOCQ)]
- (b) What are the requirements of a good preservative that can used for preservation of timber? [[CO4](Remember/LOCQ)]
- 6 + 6 = 12**
5. (a) Explain the different properties of cast iron. What are the uses of cast iron? [[CO3](Remember/LOCQ)]

- (b) What do you mean by mild steel? What are the properties of mild steel?
 [[CO4](Remember/LOCQ)]
(3 + 3) + (2 + 4) = 12

Group - D

6. (a) Draw a neat sketch of precast circular concrete pile. [[CO4](Create/HOCQ)]
 (b) Explain the following terms: (i) Brick bond, (ii) Closer and (iii) Perpend. [[CO5](Remember/LOCQ)]
6 + (2 + 2 + 2) = 12
7. (a) Write short notes on partition wall and reinforced brick work. [[CO5](Analyse/IOCQ)]
 (b) With the help of a neat sketch show the different components of a wooden panelled door. [[CO4](Create/HOCQ)]
(3 + 3) + 6 = 12

Group - E

8. (a) Write a short note on Queen Post Truss. [[CO5](Remember/LOCQ)]
 (b) Draw a neat sketch of King Post Truss. [[CO6](Create/HOCQ)]
4 + 8 = 12
9. (a) What do you mean by plastering? What are the objects of plastering? [[CO5](Remember/LOCQ)]
 (b) Write short notes on White washing and Distempering. [[CO4](Remember/LOCQ)]
(3 + 3) + (3 + 3) = 12

Cognition Level	LOCQ	IOCQ	HOCQ
Percentage distribution	58	8	34

