

**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) Tricalcium silicate develops
(a) early strength (b) ultimate strength
(c) does not contribute to develop strength (d) none of the above.
- (ii) The final setting time of ordinary Portland cement is
(a) 30 minutes (b) 1 hour (c) 5 hours (d) 10 hours.
- (iii) For proper calcination of lime stone, the temperature in the kiln should be
(a) 300°C (b) 900°C (c) 600°C (d) 800°C
- (iv) Seasoning of timber is done to
(a) minimize the tendency to shrink, warp and split
(b) increase its strength, durability and electrical resistance
(c) to make it fit for preservation treatment
(d) none of the above.
- (v) For carrying out bituminous patchwork during the rainy season the most suitable binder is
(a) Hot bitumen (b) Road tar
(c) Bituminous emulsion (d) Cutback bitumen.
- (vi) The load carrying capacity of a bored cast in situ pile develops due to
(a) skin friction (b) end bearing
(c) both (a) and (b) (d) neither (a) nor (b).
- (vii) Which of the following bonds is considered as the strongest bond in brick work?
(a) English bond (b) Raking bond
(c) Dutch bond (d) Garden-wall bond.
- (viii) The piles that are used for protecting structures from ships and floating objects is called
(a) Anchor piles (b) Fender piles
(c) Compaction piles (d) Batter piles.

- (ix) The vertical portion between each tread on a stair is called
 (a) Going (b) Nosing (c) Winder (d) Riser.
- (x) Trusses are used in trussed roofs to support the
 (a) Rafters (b) Purlins (c) Beam (d) Roof material.

Fill in the blanks with the correct word

- (xi) Presence of iron oxides affects _____ of bricks.
- (xii) Before plastering the surface has to be _____.
- (xiii) Hydraulic lime is used for _____.
- (xiv) In a king-post truss _____ prevent the purling from tilting.
- (xv) Over burnt bricks are also known as _____ bricks.

Group - B

2. (a) What are the requirements of good brick earth? [[CO3](Remember/LOCQ)]
 (b) Mention the properties of first class brick and second class brick. [[CO4](Remember/LOCQ)]
6 + 6 = 12
3. (a) What do you mean by hydration of cement? Mention the functions of Bouge's compounds. [[CO3](Remember/LOCQ)]
 (b) Write short notes on Sulphate Resisting Cement and Portland Slag Cement. [[CO4](Remember/LOCQ)]
(2 + 4) + (3 + 3) = 12

Group - C

4. (a) Write a short note on seasoning of timber. What are the purposes of seasoning of timber? [[CO1](Understand/LOCQ)]
 (b) Classify the different diseases of timber and also explain their remedies. [[CO4](Remember/LOCQ)]
(3 + 3) + 6 = 12
5. (a) What are the characteristics of a good tile? [[CO1](Understand/LOCQ)]
 (b) Write short notes on PVC tiles and Vitriified tiles. [[CO3](Remember/LOCQ)]
 (c) What are the differences between bitumen and tar? [[CO2](Remember/LOCQ)]
4 + (3 + 3) + 2 = 12

Group - D

6. (a) What are functions of foundation? What are the essential requirements of a good foundation? [[CO4](Remember/LOCQ)]
 (b) Draw a neat sketch of Strap footing. [[CO4](Create/HOCQ)]
(3 + 3) + 6 = 12

7. (a) Describe Flemish bond with the help of a neat sketch. *[(CO5)(Remember/LOCQ)]*
 (b) What are the differences between English bond and Flemish bond? *[(CO6)(Remember/LOCQ)]*
 (c) With the help of a neat sketch of a wall show vertical joint, header course, stretcher course, quoin, quoin closer. *[(CO6)(Create/IOCQ)]*
- 5 + 5 + 2 = 12**

Group - E

8. (a) Plan a dog legged stair having a landing of width 1.4m and a stair hall of 3m x 5m. The floor height is 3.5m. *[(CO6)(Apply/IOCQ)]*
 (b) Draw a neat sketch of open well dog legged stair. *[(CO4)(Create)/HOQ]*
- 7 + 5 = 12**
9. (a) Write a short note on Shallow foundations. *[(CO5)(Remember/LOCQ)]*
 (b) What are the differences between Shallow foundation and Deep foundation? *[(CO4)(Remember/LOCQ)]*
 (c) Write short note on Pointing. *[(CO6)(Remember/LOCQ)]*
- 6 + 3 + 3 = 12**

Cognition Level	LOCQ	IOCQ	HOCQ
Percentage distribution	79.16	9.37	11.47

