B.TECH/CE/3RD SEM/CIVL 2103 (BACKLOG)/2020

BUILDING MATERIALS AND CONSTRUCTION (CIVL 2103)

Time Allotted : 3 hrs

1.

Full Marks: 70

Figures out of the right margin indicate full marks.

Candidates are required to answer Group A and any 5 (five) from Group B to E, taking at least one from each group.

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

Group – A (Multiple Choice Type Questions)

| Choose the correct alternative for the following: | | | | $10 \times 1 = 10$ |
|---|---|--|---|--------------------|
| (i) | Water absorpt (a) 12% | ion of 1 st class bricks sho (b) 15% | ould not be more than (c) 20% | (d) 25% |
| (ii) | The raw bricks shrink during drying and warp during burning because of (a) less lime in brick earth (b) less silica and excess magnesia in brick earth (c) excess of alumina and silica in brick earth (d) alkalis in brick earth | | | |
| (iii) | If p is the standard consistency of cement, the amount of water used in conducting the setting time test is (a) 0.65p (b) 0.85p (c) 0.6p (d) 0.78p | | | |
| (iv) | If <i>L</i> is the length and <i>B</i> is the width of the brick and <i>t</i> the thickness of mortar, the relation between these is (a) $L = 2B$ (b) $L = B + t$ (c) $L = B + 2t$ (d) $L = 2B + it$ | | | |
| (v) | In mild steel th (a) 50% | ne iron content is about:- (b) 80% | (c) 90% | (d) 99% |
| (vi) | The apex line ((a) ridge | of the slopping roof is cal (b) eaves | lled: (c) verge | (d) purlins |
| (vii) | Plaster of Paris CaSO4.(0.5)H2O cont (a) 3% of water (c) 8% of water | | ains about:- (b) 6% of water (d) 11% of water | |
| (viii) | Gypsum has (a) high bulk density (c) damp proofing property | | (b) negligible shrinkage (d) low creep | |

B.TECH/CE/3RD SEM/CIVL 2103 (BACKLOG)/2020

- (ix) For bridges, the appropriate foundation is:
 (a) pile foundation
 (b) pier foundation
 (c) well foundation
 (d) spread footing
- (x) In a stair, the vertical distance between two successive tread faces is called
 (a) flight
 (b) tread
 (c) rise
 (d) nosing.

Group – B

- 2. (a) Write the percentage of all the chemical compositions present in clay-burnt bricks.
 - (b) What is rapid hardening cement? What is responsible for it's high early strength? How does it differ from OPC?
 - (c) What do you mean by hydration of cement.

3 + 6 + 3 = 12

- 3. (a) What do you mean by flakiness index and elongation index for aggregates? Vividly explain any five properties of aggregates. (in brief)
 - (b) Write short notes on:(i) Alkali- aggregate reaction(ii) Bulking of sand.

6 + (3 + 3) = 12

Group – C

- 4. (a) What is the composition of iron. Also write short notes on properties of cast iron.
 - (b) What are the precautions to be taken while making the use of mortar?
 - (c) Briefly explain the classification of timber based on following:
 (i) Position (ii) Grading (iii) Durability.

(3+3)+3+3=12

- 5. (a) Write short note on:- (Any two)
 - (i) Gypsum
 - (ii) Plaster of Paris
 - (iii) Enamel paints and varnishes
 - (b) Explain various reasons behind decay of timber (Any three).

(3 + 3 + 3) + 3 = 12

Group – D

- 6. Describe different types of deep foundations with neat sketches.
- 7. (a) Describe the composition of oil paint.

CIVL 2103

12

B.TECH/CE/3RD SEM/CIVL 2103 (BACKLOG)/2020

(b) Mention the ingredients of varnishes (in details).

4 + 8 = 12

Group – E

- 8. (a) Write down the objects of plastering.
 - (b) Write a short note on dog-legged stair. Plan a dog legged stair for a building in which the vertical distance between the floors is 3.6 m. The stair hall measures $3 \text{ m} \times 5 \text{ m}$.

3 + 9 = 12

- 9. (a) Describe with the help of a neat sketch the different parts of a Queen-post truss.
 - (b) Write down the required characteristics of a floor to perform its functions properly.

8 + 4 = 12

| Department & Section | Submission Link | |
|-------------------------|--|--|
| СЕ | https://classroom.google.com/u/1/c/Mjc0NTUwMjA4Mzkx/a/Mjc0NTU1NjI2NDUx/details | |