Seat No. _____

HAA-161001010402

B. Arch. (Sem. IV) Examination

May - 2023

Building Materials & Construction-IV

Time : **2** Hours / Total Marks : **50**

Instructions :
(1) Critical understanding of subject is the key-criterion of assessment.
(2) Support your statement with examples/sketches wherever necessary.
(3) Assume appropriate data wherever necessary.
(4) Attend all Four (04) equations.

1 Objective type question, attend any ten (10) **10**

(1) Workability is a property of concrete by which concrete can be _____ properly. (Mixed / Placed / Compacted)
(2) Curing is required for _____.
(To continue hydration / To break hydration/ To break gel to water ratio)
(3) pH of water used for concrete should be _____.
(More than 6 / less than 6 / exact 5)
(4) C3S Responsible for _____ Strength.
(Initial / Intermediate / Final)
(5) If we add extra water in concrete, it will increase _____.
(w/c ratio / Bleeding / Workability)
(6) Cement should be used before _____ month/s. (1 / 3 / 12)
(7) To increase Initial-setting time, _____ is added in cement
(Lime / Alumina / Gypsum)
(8) Water is _____ ingredient in concrete.
(Inactive / Active / Neutral)
(9) Proportion of M20 grade concrete is _____.
(1:2:4 / l:3:6 / l:4:8)
(10) Minimum cover require in RCC Column is _____ mm.
(10 / 15 / 25)
(11) M20 concrete = _____ N/mm2 of compressive strength.
(2 / 20 / 200)

(12) Masonry cement is of _____ grade. (33/ 43 / 53)
(13) Reinforcement is used to add compressive strength to concrete in beams Yes _____ / No _____.
(14) Salt water can be used for making concrete - Yes _____/ No _____.
(15) 'Ferro cement' is a type of cement - Yes _____ /No _____.

2 Short Question, attend any Five (05) **10**

(1) Discuss the 'Workability', with reference to Concrete.
(2) Discuss the 'Bleeding', with reference to Concrete.
(3) Discuss the 'Honeycombing', with reference to Concrete.
(4) Why we do 'Compaction' of RCC? - Discuss its role & relevance.
(5) Why we do 'Curing of RCC'? -- Discuss its role & relevance.
(6) What is the importance of 'Cover in RCC'?
(7) What is M20 and M25? Discuss both with its proportions.
(8) What is 'Fine Aggregate and Coarse Aggregate' in RCC? Discuss their role & relevance.

3 Long Question, attend any Three (03) **15**

(1) Isolated footing of RCC column with 'column - plinth beam' junction.
(2) Raft foundation in RCC and provision of sub-surface water drain in it.
(3) Placement of Steel bars in typical RCC 'column - beam & slab' junction.
(4) Retaining wall and Shear wall from exposed, fair finished, In-situ RCC.
(5) Post-tensioning for 'In-situ' RCC.
(6) Form-work for 'Sunken Slab' with provision for Plumbing & Drainage, and Electrification services.

4 Descriptive Question, attend any One (01) **15**

(1) Design 'Folded plate RCC Stair' (Width- 1.50 Mt. X Tread- 0.30 Mt. X Riser- 0.16 Mt., for Floor to Floor Height- 3.20 Mts. Height). Draw - Plan, Section, Elevation, and Details - all in suitable scale.
(2) Design 'Roof / Cover of Movie Theatre' {Span- 20 Mt. X 40 Mt., to be made from RCC). Give your proposal with reasoning. Draw - Plan, Section, Elevation, and Details - all in suitable scale