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Indian Institute of Technology Kharagpur
End-Spring Semester Examination 2010-2011

AR12002 Building Materials (1st Yr. B.Arch.)
Time: 3 Hrs. Full Marks: 100

Answer all questions:

- 1 Provide answer in 1-2 words. 10
- a Optimum water cement ratio is 1: _____. Here the ratio is by _____.
 - b Example of slag is _____ and of pozzolan is _____.
 - c Water absorption of first class brick must not exceed _____ %
 - d Which different stones produce strong and lightweight coarse aggregate?
 - e Write one brand name for each of the following: OPC, plywood, adhesive.
- 2 a Describe salt crystallization test on stone. 5+1+4
- b Why this test is important?
 - c Mention various special brick in terms of use.
- 3 a Describe various natural and man-made defects in timber. 5+1+4
- b What is fiber board?
 - c How fiber boards are manufactured?
- 4 a Explain briefly dry process of cement manufacturing. 5+5+5
- b Write common and chemical names of main reactive elements in cement and what do they produce after hydration?
 - c How these reactive elements influence strength gain of concrete with time?
- 5 a What is meant by M20 concrete? 1+5+3+1
- b For erecting a dam exposed to sea water, suggest type of concrete in terms of ingredients and performance of hardened product. Give reasons for your choice.
 - c Mention various classification of fine aggregate.
 - d Why RMC is better than site manufactured concrete?
- 6 a Mention various types of adhesives with examples. 3+1+1+5
- b Fevicol falls under which category?
 - c What adhesive can join concrete and tile?
 - d What are the major desirable properties of a good adhesive? Explain them.
- 7 Select best alternatives and logically support your choice. 3x 5
- a Kitchen floor: marble / vitrified tiles / clay tiles
 - b Bridge pier: OPC/ RHC / PSC
 - c Door leaf: Saal wood / Pine wood / Teak wood
 - d Grit size for slab: 5mm / 12 mm / 80 mm
 - e Lecture hall ceiling: terracotta panel / fibre board / veneer
- 1 Write short notes on (any four): 5 x 4
- a. Toughness of material
 - b. Vitrification
 - c. Bulking of sand
 - d. Portland slag cement
 - e. Blockboard

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