

CIVIL ENGG MATERIALS & CPNSTRUCTION PRACTICES

Time: Three Hours

Maximum Marks: 100

Answer five questions, taking ANY TWO from Group A, any two from Group B and all from Group C.

All parts of a question (a, b, etc.) should be answered at one place.

Answer should be brief and to-the-point and be supplemented with neat sketches.

Unnecessary long answer may result in loss of marks.

Any missing or wrong data may be assumed suitably giving proper justification.

Figures on the right-hand side margin indicate full marks.

Group A

1. (a) Define following properties of materials : (i) creep, (ii) elasticity, (ii) ductility, (iii) density, (v) shrinkage 8
- (b) Describe the classifications, properties and uses of *five* important types of stone employed in civil engineering work. 6
- (c) Explain different types of defects in timber. 6
2. (a) Describe different rolled sections of structural steel with neat sketches and state their uses. 8
- (b) Describe briefly with applications (i) high early strength cement (ii) low alkali cement (iii) rapid hardening cement 6
- (c) What are the main constituents of Portland cement and their respective functions. 6
3. (a) With the help of flow chart, explain the wet process of manufacture of ordinary cement. 8
- (b) State any three physical and two chemical properties of cement. 6
- (c) Describe desirable properties and functions of different constituents of concrete. 6

4. (a) Describe the functions and uses of various admixtures used in concrete. 6
(b) What is the specific need of fibre reinforced concrete? Brief different types of fibres used in concrete. Also, mention their properties, advantages, limitations and applications 8
(c) Briefly describe any three methods of non destructive tests for concrete. 6

Group B

5. (a) Explain, with the help of neat sketches, the manufacture of bricks by Bull's trench kiln. 10
(b) What are the required qualities of good brick earth ? 10
6. (a) Give properties of Class I bricks. 10
(b) What is the concept of quality? State any three stages of quality control. Explain any three basic elements of quality. 10
7. (a) What are general principles of inspection of civil engineering works and what are the main items requiring quality control? 10
(b) What are the safety measures taken during construction of major civil engineering projects? 10
8. (a) Describe in detail about (i) unit rate contract, (ii) lump-sum contract, and (iii) turnkey contract 10
(b) What is depreciation? Explain different types of depreciation. 10

Group C

9. Answer the following in brief: 20
- (i) What is the size of concrete cube?
 - (ii) What is the size of concrete cylinder?
 - (iii) What is the size of slump cone?
 - (iv) What is the formula for modulus of elasticity of concrete as per IS 456 – 1978?

- (v) Which apparatus is required to find out the specific gravity of cement ?
- (vi) Name any five items of information which must be provided in a tender notice
- (vii) The cement contains more C_3S is preferable in cold climate. Why?
- (viii) Pozzolana can improve the sulphate resistance of concrete, why?
- (ix) The simplest and direct method of valuation is comparative method, why?
- (x) The tender submitted by the contractor who resorts to canvassing will be liable to rejection, why ?

(Refer our course material for answers)

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