

SUBJECT: Basic Civil Theory

CLASS XI

SEMESTER I

THEORY

FULL MARKS – 20

(MCQ Type Question)

UNIT	Topic	No of periods assigned	Marks
1	Brick	5	2
2	Building stones and Aggregate	6	3
3	Sand Fine (Aggregate)	5	2
4	Cement	5	3
5	Lime	5	2
6	Mortar	3	2
7	Timber	5	1
8	Tiles	3	1
9	Paints & Varnish	3	2
10	Bituminous material, their functions & uses	3	1
11	Construction Machineries.	2	1
Total		45	20

DETAIL SYLLABUS

Unit	Topic / Sub Topic	No of periods assigned	
		Topic / Sub Topic	Total
1	1. Brick:		5
	1.1 Classification of bricks.	1	
	1.2 Characteristics of brick.	2	
	1.3 Use of other type of bricks (Fly ash bricks, light weight concrete bricks, hollow bricks) alternative to conversional clay bricks.	2	
2	2. Building stones and Aggregate:		6
	2.1 Building stones-definition. Uses of stones in building construction e.g. Sand Stone, Lime stones, Marble, Granite.	2	
	2.2 Characteristics of good stone for construction purpose.	1	

	2.3 Aggregate. Types of aggregate (based on source, shape, size) and their uses in construction. Characteristics of good coarse aggregate.	3	
3	3. Sand (Fine Aggregate):		5
	3.1 Sources of sand.	1	
	3.2 Classification of sand.	2	
	3.3 Specification & uses of sand.	1	
4	3.4 Bulking of sand.	1	5
	4. Cement:		
	4.1 Types & uses of cement.	2	
	4.2 Setting & hardening of cement.	1	
5	4.3 Storing of cement.	1	5
	4.4 Field test of cement.	1	
	5. Lime:		
	5.1 Sources of lime.	1	
6	5.2 Classification of lime.	1	3
	5.3 Uses of lime.	1	
	5.4 Slaked lime, Fat lime and plaster of paris (composition & Use).	2	
	6. Mortar:		
7	6.1 Classification & preparation of mortar.	2	5
	6.2 Uses of mortar	1	
	7. Timber:		
8	7.1 Classification of timber and Uses of timber.	1	3
	7.2 Defects in timber, Diseases in timber and remedies.	2	
	7.3 Seasoning of timber.	1	
	7.4 Characteristics of good timber.	1	
9	8. Tiles:		3
	8.1 Different types of tiles.	2	
	8.2 Uses of tiles.	1	
10	9. Paints & Varnish:		3
	9.1 Ingredients of paints and varnishes.	1	
	9.2 Characteristics of paints and varnishes.	1	
11	9.3 Application of paints and varnishes to different types of surfaces.	1	3
	10. Bituminous material, their functions& uses:		
	10.1 Asphalt.	1	
11	10.2 Cut back bitumen & tar etc.	2	2
	11. Construction Machinerries:		
	11.1 Different types of construction machinerries used in construction sites.	2	
	Total	45	

SUBJECT: Basic Civil Theory**CLASS XI****SEMESTER II****THEORY****FULL MARKS – 30****(SAQ AND LAQ Type Question)**

UNIT	Topic	No of periods assigned	Marks
1	Cement Concrete	8	5
2	Ferrous metals Non-Ferrous metals and Alloys in construction work.	8	5
3	Plumbing: Building sanitation & water supply.	12	5
4	Safety equipment in Construction industry (PPE kit)	4	2
5	Stress & Strain:	15	6
6	Shear Force & Bending Moment:	16	7
Total		63	30

DETAIL SYLLABUS

UNIT	Topic / Sub Topic	No of periods assigned	
		Topic / Sub Topic	Total
1	1.Cement Concrete:		8
	1.1 Composition of PCC and RCC.	1	
	1.2 Preparation of concrete- Batching, Mixing, Placing, Compaction, Curing, and Finishing	3	
	1.3 Grade of Concrete.	1	
	1.4 Properties of fresh and hardened concrete	3	
2	2. Ferrous metals Non-Ferrous metals and Alloys in construction work.		8
	2.1 Composition & use of: Steel, cast iron, pig iron, wrought iron.	3	
	2.2 Properties and uses of Aluminium, Copper, Asbestos Cement sheets, PVC	3	
	2.3 Properties and uses of Brass, Bronze	2	
3	3. Plumbing: Building sanitation & water supply.		12
	3.1 Specification and use of plumbing items for sanitary & water supply-bath fittings (shower and bath tub), water closet, urinal, wash basin, kitchen sink, valves, taps (bib cock and stop	6	

	cocks).		
	3.2 Different types of pipe (Soil Pipe, Waste pipe, Vent pipe, Rainwater pipe, Anti-siphonage pipes, domestic water supply pipes) with joint (Tee, elbow, wyes) and fittings (reducer, union, cross, coupling, valves, adapter etc.) used in domestic connections, different gaskets.	6	
	4. Safety equipment in Construction industry (PPE kit)		
4	4.1 Common construction PPE e.g. hard hats, safety glasses or goggles, earplugs or earmuffs, respirators, work gloves, fall protection safety belts, steel-toed boots, etc.	3	4
	4.2 Importance of PPE in construction industry.	1	
	5. Stress & Strain:		
	5.1 Definition of simple stress & strain & their Unit.	2	
5	5.2 Hook's Law, Definition of Young's Modulus.	2	15
	5.3 Bulk Modulus, Modulus of Rigidity, Poisson's Ratio.	4	
	5.4 Elongation of a bar under tensile load.	2	
	5.5 Simple numerical problems.	4	
	6. Shear Force & Bending Moment:		
	6.1 Types of loads, beam & support.	2	
	6.2 Definition & concept of shear force and bending moment of beam.	3	
6	6.3 SF & BM diagrams of Cantilever & simply supported beam with point load.	4	16
	6.4 SF & BM diagrams of Cantilever & simply supported beam with uniformly distributed load, concept of point of Contra flexure.	4	
	6.5 Simple numerical problem	3	
	Total	63	