LESSON PLAN

Name of the Faculty : Mr.ManikGoyal
Discipline : B.Tech in Civil Engineering
Semester : VII (4TH Year)
Subject : CE – 401E, Design of Concrete Structures - II
Lesson Plan Duration : 15 Weeks (from Aug, 2018 to Dec, 2018)
Work Load (Lecture / Practical) per week (in hrs.) : Lectures – 04

Lesson Plan			
Week	**Lecture Day**	**Theory**	
		Topic(Including Assignment Test)	**Date**
1st	1	**Continuous Beams:** Basic assumptions, Moment of inertia, settlements, Modification of moments,	
	2	maximum moments and shear, beams curved in plan-analysis for torsion,	
	3	redistribution of moments for single and multi-span beams, design examples.	
	4	Design Examples	
2nd	5	Prestressed Concrete: Basic principles, classification of prestressed members	
	6	various prestressing systems, losses in prestress, initial and final stress conditions,	
	7	analysis and design of sections for flexure and shear, load balancing concept, I:S:Specifications	
	8	Examples	
3rd	9	End blocks-Analysis of stresses, Magnel's method, Guyon's method,	
	10	Design Examples	
	11	Bursting and spalling stresses, design examples.	
	12	Design Examples	
4th	13	Flat slabs and staircases:Advantages of flat slabs, general design considerations,	
	14	approximate direct design method, design of flat slabs,	
	15	openings in flat slab	
	16	Design Examples	
5th	17	Design Examples	
	18	Design of various types of staircases, design examples.	
	19	Design Examples	
	20	Foundations:Combined footings, raft foundation,	
6th	21	Design Examples	
	22	Design of pile cap and piles, under-reamed piles, design examples.	
	23	Design Examples	
	24	Design Examples	
7th	25	**MINOR TESTI**	
	26		
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8th	29	**Water Tanks, Silos and Bunkers:**Estimation of Wind and earthquake forces, design requirements, rectangular and cylindrical underground and overhead tanks,	
	30	Design Examples	
	31	Design Examples	
	32	Intze tanks, design considerations, design examples.	
9th	33	Design Examples	
	34	Design Examples	
	35	Silos and Bunkers-Various theories, Bunkers with sloping bottoms and with high side walls, battery of bunkers, design examples	
	36	Silos and Bunkers-Various theories, Bunkers with sloping bottoms and with high side walls, battery of bunkers, design examples	
10th	37	Silos and Bunkers-Various theories, Bunkers with sloping bottoms and with high side walls, battery of bunkers, design examples	
	38	Design Examples	
	39	Design Examples	
11th	40	Building Frames: Introduction, Member stiffnesses, Loads,	
	41	Analysis for vertical and lateral loads, Torsion in buildings,	
	42	Ductility of beams, design and detailing for ductility, design examples.	

	43	Design Examples	
	44	Design Examples	
12th	45	Yield Line Theory:Basic assumptions, Methods of analysis, yield line patterns and failure mechanisms,	
	46	Numerical Problems	
	47	Numerical Problems	
	48	analysis of one way and two way rectangular and non-rectangular slabs,	
13th	49	analysis of one way and two way rectangular and non-rectangular slabs,	
	50	analysis of one way and two way rectangular and non-rectangular slabs,	
	51	Numerical Problems	
	52	Numerical Problems	
14th	53	**MINOR TESTII**	
	54		
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15th	57	Effect of top corner steel in square slabs, design examples.	
	58	Numerical Problems	
	59	Numerical Problems	
	60	Numerical Problems	

Name of the Faculty : Mr.Kamaldeep Singh
Discipline : B.Tech in Civil Engineering
Semester : VII (4TH Year)
Subject : CE – 403E, Irrigation Engg. - II
Lesson Plan Duration : 15 Weeks (from Aug, 2018 to Dec, 2018)
Work Load (Lecture / Practical) per week (in hrs.) : Lectures – 04

Lesson Plan		
Week	**Lecture**	**Theory**

	Day	Topic(Including Assignment Test)	Date
1st	1	**Regulation works:** Canal falls-necessity and location, development of falls,	
	2	Design of cistern element, roughening devices,	
	3	Design Example	
	4	Design of Sarda type fall,	
2nd	5	Design Example	
	6	Design Example	
	7	Design of straight Glacis fall.	
	8	Design Example	
3rd	9	Off-take alignment, cross-regulator and distributary, head regulators,	
	10	Devices to control silt entry into the off-taking channel and silt ejector,	
	11	Canal escapes, types of escapes.	
	12	**Cross drainage works:** Classification and their selection,	
4th	13	Hydraulic design aspects of aqueducts,	
	14	Hydraulic design aspects of syphon aqueducts,	
	15	super passage, canal syphon and level crossing,	
	16	Numerical Problems	
5th	17	Numerical Problems	
	18	Design of transitions	
	19	Numerical Problems	
	20	**Diversion canal Headwork:** Various components and their functions, layout plan,	
6th	21	selection of site for diversion headworks, Bligh's creep theory,	
	22	Khosla's method of independent variables, use of Khosla's curves,	
	23	Khosla's method of independent variables, use of Khosla's curves,	
	24	Various corrections, silt excluders	
7th	25	**MINOR TESTI**	
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8th	29	Numerical Problems	
	30	Numerical Problems	
	31	**Storage Headworks:** Types of dams, selection of a site,	
	32	gravity dam-two dimensional design, forces acting, stability criterion,	
9th	33	gravity dam-two dimensional design, forces acting, stability criterion,	
	34	gravity dam-two dimensional design, forces acting, stability criterion,	
	35	Elementary profile of a dam, cutoffs and drainage galleries, arch dams-constant angle and constant radius arch dam,	
	36	Elementary profile of a dam, cutoffs and drainage galleries, arch dams-constant angle and constant radius arch dam,	
	37	simple design and sketches, most economical angle,	
	38	most economical angle, Examples	
10th	39	Earth dam, design principles, seepage through earth dams, seepage line, control of seepage, design of filters.	
	40	Earth dam, design principles, seepage through earth dams, seepage line, control of seepage, design of filters.	
	41	Earth dam, design principles, seepage through earth dams, seepage line, control of seepage	
11th	42	Design of filters.	
	43	Design of filters, Design Examples	
	44	**Spillways and Energy Dissipaters:** Essential requirements of spillway and spillway's capacity,	
12th	45	types of spillways and their suitability,	
	46	Ogee spillways,	
	47	Examples design and analysis	
	48	Chute Spillways ,	
13th	49	Examples design and analysis	
	50	side channel, shaft and syphon spillways	
	51	Energy dissipation below spillways,	
	52	Energy dissipation below spillways,	
14th	53		

	54	**MINOR TEST II**	
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	57	Stilling basins	
15th	58	USBR	
	59	I.S. Stilling Basins.	
	60	I.S. Stilling Basins.	

Name of the Faculty : Mr.HinoniGoyal
Discipline : B.Tech in Civil Engineering
Semester : VII (4th Year)
Subject : CE – 405E Transportation Engineering – II
Lesson Plan Duration : 15 Weeks (from Aug, 2018 to Dec, 2018)
Work Load (Lecture / Practical) per week (in hrs.) : Lectures – 04

Week	Theory		
	Lecture day	**Topic (Including Assignment Test)**	**Date**
1st	1	Design of Flexible Pavements: Types of pavements	
	2	Flexible and rigid pavements	
	3	Components of a pavement and their functions.	
	4	Factors affecting design of pavements. Design of thickness of a flexible pavement by Group Index method	
2nd	5	Design of thickness of a flexible pavement by CBR method (including latest IRC	

		guidelines),	
	6	Design of thickness of a flexible pavement by CBR method (including latest IRC guidelines),	
	7	Triaxial method and Burmister's method.	
	8	Design Of Rigid Pavements: Westergaard's theory	
3rd	9	Critical locations of loading, load and temperature stresses	
	10	Critical combination of stresses. IRC guidelines for determination of thickness of a rigid pavement.	
	11	IRC guidelines for determination of thickness of a rigid pavement.	
	12	Joints: requirements, types, patterns.	
4th	13	Spacing of expansion and contraction joints. Functions of dowel and tie bars.	
	14	Highway Construction: Non-Bituminous Pavements: Brief introduction to earthwork machinery: shovel, hoe, clamshell, dragline, bulldozers.	
	15	Principles of field compaction of subgrade. Compacting equipment's.	
	16	Granular roads. Construction steps of WBM. WMM	
5th	17	Construction of cement concrete pavements. Slip-form pavers.	
	18	Basic concepts of the following: soil stabilized roads, use of geo-synthetics, reinforced cement concrete pavements,	
	19	prestressed concrete pavements, roller compacted concrete pavements and fibre reinforced concrete pavements	
	20	Construction of Bituminous Pavements: Various types of bituminous constructions. Prime coat, tack coat, seal coat and surface dressing.	
6th	21	Construction of BUSG, Premix carpet,	
	22	Construction of BM, DBM and AC	
	23	Brief coverage of machinery for construction of bituminous roads: bitumen boiler, sprayer, pressure distributer, hot-mix plant, cold-mix plant, tipper trucks, mechanical paver or finisher, rollers. Mastic asphalt.	
	24	Introduction to various IRC and MOST specifications	
7th	25	**MINOR TEST 1**	
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8th	29	Highway Maintenance: Pavement failures. Maintenance operations.	
	30	Maintenance of WBM, bituminous surfaces and cement concrete pavements	
	31	Pavement evaluation. Benkleman beam.	
	32	Introduction to various types of overlays.	
9th	33	Highway Drainage and Hill Roads: Surface drainage: types, brief design.	
	34	Types of sub-surface drainage.	
	35	Special characteristics of hill roads: geometrics, hair pin bends,	
	36	construction of hill roads	
10th	37	drainage of hill roads, maintenance problems of hill roads	
	38	Highway Economics and Finance: Need of economic evaluation.	
	39	Highway user benefits and costs.	
	40	Methods of economic evaluation: benefit cost ratio method	
11th	41	Methods of economic evaluation : net present value method,	
	42	Methods of economic evaluation: internal rate of return method	
	43	Methods of economic evaluation: comparison. Highway finance.	
	44	Methods of economic evaluation: comparison. Highway finance.	
12th	45	Tunnels Sections of tunnels: advantages, limitations and suitability of each section.	
	46	Tunnels Sections of tunnels: advantages suitability of each section.	
	47	Tunnels Sections of tunnels: advantages suitability of each section.	
	48	Shaft. Pilot tunnel.	
13th	49	Driving tunnel in rocks: sequence of construction operations	
	50	Driving tunnel in rocks: sequence of construction operations	
	51	Full face method.	
	52	heading and bench method	
14th	53	drift method	
	54	Driving tunnels in soft ground: sequence of construction operations,	
	55	needle beam method, shield tunneling	
	56	Compressed air tunneling.	

15th	57	**MINOR TEST II**	
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Name of the Faculty : Mr.Sumeet

Discipline : B.Tech in Civil Engineering

Semester : VII (4thYear)

Subject : CE – 407E, Sewerage & Sewage Treatment

Lesson Plan Duration : 15 Weeks (from Aug, 2018 to Dec, 2018)

Work Load (Lecture / Practical) per week (in hrs.) : Lectures – 03

Week	Theory		Date
	Lecture Day	Topic (Including assignment / Test)	
1st	1	Collection of sewage: Importance of sanitation, systems of sanitation	
	2	Types of sewage and types of sewerage systems, components of sewerage system	
	3	Systems of sewerage – separate, combined and partially separate.	
2nd	4	Quantity of sanitary sewage and variations, characteristics of sewage	
	5	Population Equivalent	
	6	Numerical Problems	
3rd	7	Hydraulic Design of sewers, free board, flow velocities	
	8	Numerical Problems	
	9	Maximum and minimum velocities to be generated in sewers	

4th	10	Shapes of sewer – circular and egg shaped, Hydraulic characteristics of circular sewer sections running full or partially full	
	11	Numerical Problems	
	12	Design of sewers	
5th	13	Numerical Problems	
	14	Self-cleansing velocity and slopes, Construction and testing of sewer lines.	
	15	Sewer materials. joints and appurtenances	
6th	16	Quality parameters- BOD, COD, Solids, D.O., Oil & Grease.	
	17	Indian Standards for disposal of effluents into inland surface sources and on land	
	18	Objectives, sequence and efficiencies of conventional treatment units.	
7th	**1st Minor Test**		
8th	19	Preliminary treatment, screening, types of screens, design and cleaning	
	20	Disposal of screenings, Design examples	
	21	Grit removal units, settling of particles, grit chambers	
9th	22	Aerated grit channels, detritus tanks	
	23	Theory and design aspects of primary treatment, secondary treatment- activated sludge process & its modifications,	
	24	Theory and design aspects of primary treatment, secondary treatment- activated sludge process & its modifications,	
10th	25	Theory and design aspects of primary treatment, secondary treatment- activated sludge process & its modifications,	
	26	Tricking filter, sludge digestion and drying beds.	
	27	Tricking filter, sludge digestion and drying beds.	
11th	28	Stabilization pond, aerated lagoon, UASB process , septic tank and Imhoff tank	
	29	Stabilization pond, aerated lagoon, UASB process , septic tank and Imhoff tank	
	30	Stabilization pond, aerated lagoon, UASB process , septic tank and Imhoff tank	
12th	31	Stabilization pond, aerated lagoon, UASB process , septic tank and Imhoff tank	
	32	Disposal of sewage by dilution – self-purification of streams.	
	33	Characteristics of sewage, self-purification system of streams	
13th	34	effect of sewage on streams, effect of streams on disposed sewage	
	35	Standards for disposal	
	36	Sewage disposal by irrigation (sewage treatment).	
14th	**2nd Minor test**		
15th	37	Definition, classification, quantity and sewage treatment	
	38	Standards for reuse of disposed sewage water for irrigation, treatment processes	
	39	Effects of disposing sewage water in irrigation	

Name of the Faculty : Mr. Harish Kumar
Discipline : B.Tech in Civil Engineering
Semester : VII (4TH Year)
Subject : CE – 413E, Hydro Electric Power Development
Lesson Plan Duration : 15 Weeks (from Aug, 2018 to Dec, 2018)
Work Load (Lecture / Practical) per week (in hrs.) : Lectures – 04

Lesson Plan			
Week	**Lecture Day**	**Theory**	
		Topic(Including Assignment Test)	**Date**
1st	1	Introduction to Hydro Electric Power, Sources of power	
	2	Terminology – Hydroelectric power, need of hydroelectric power development	
	3	Application and need of hydroelectric power stations, merits and demerits	
	4	Components of hydropower station – dams, spillways, headwork	
2nd	5	Components of hydropower station – gates and valves, flumes, forebays, penstocks, tunnels	
	6	Components of hydropower station – penstocks, tunnels	
	7	Hydropower : Indian Scenario, Multipurpose Development	
	8	Estimation of water power, necessity and importance of harnessing small hydro power,	
3rd	9	flow duration and power duration curves, load curve, load factors, capacity factors,	
	10	utilization factors, firm and secondary power, Diversity factor, prediction of load	
	11	**Numerical Problems**	

	12	**Numerical Problems**	
4th	13	**Types of Hydro Power Plants:** Elements of Hydro power, classification of hydro-power plants,	
	14	run-of-river plants – arrangement and sub – grouping	
	15	storage plants – storage and pondage, reservoir capacity, pondage capacity	
	16	diversion canal development plants – arrangement, layout and components	
5th	17	pumped storage plants – introduction, types	
	18	pumped storage plants – layout, advantages, efficiency of plant	
	19	tidal power plants – types and layout, merits/demerits	
	20	base load and peak load plants in a power grid.	
6th	21	**Intakes:** Intake structures, functions and their types,	
	22	Run – of – river intakes, Canal Intakes - functions	
	23	Dam Intakes, Tower Intakes – functions	
	24	Shaft Intakes, Intakes of special design - functions	
7th	25	**MINOR TEST-I**	
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8th	29	components of intakes - forebay, trash racks,	
	30	components of intakes - gates and valves, force required to operate gates	
	31	**Conveyance System:** Penstocks, design criterion, types	
	32	economical diameter of Penstocks	
9th	33	anchor blocks, cradles and footings,	
	34	water hammer, instantaneous closure of power canal,	
	35	surge tank, surges in canals	
10th	36	**Turbines: Introduction,** Types of turbines, different classifications	
	37	specific speed and classification of turbines, synchronous speed,	
	38	**Turbine – Generator: Layout arrangements, Efficiency of turbines**	
	39	scroll casing, flumes and draft tubes, dimensions of scroll Casing and draft tubes,	
	40	Cavitation in Turbines, Abrasion in Hydraulic Machinery	
11th	41	Governing of Turbines – Hydraulic and Electronic	
	42	Characteristics of Turbines	
	43	setting of turbines	
	44	Numerical Problems	
12th	45	Numerical Problems	
	46	**Power House:** General layout and arrangements of hydro-power number and size of units,	
	47	Power House Structure: Sub - Structure, Intermediate Structure, Super - Structure	
	48	Dimension and Size of Structure	
13th	49	underground power stations – Introduction, Location, types	
	50	Components of underground powerhouse, Advantages of underground power stations	
	51	Types of layout of underground powerhouse	
	52	Tidal Power – Energy from oceans, basic principle of tidal power	
14th	53	**MINOR TEST-II**	
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15th	57	Historical development, prominent sites in the world and in India	
	58	Modes of Generation	
	59	Structural Components of Tidal plants	
	60	Economics and Advantages/Disadvantages of tidal plants	

Lesson Plan

Name of the Faculty : Ms.ManjuGodara
Discipline : B.Tech in Civil Engineering
Semester : VII (4TH Year)
Subject : CE – 423E, Concrete Technology
Lesson Plan Duration : 15 Weeks (from Aug, 2018 to Dec, 2018)
Work Load (Lecture / Practical) per week (in hrs.) : Lectures – 04

Week	Theory		Date
	Lecture Day	Topic (Including assignment / Test)	
Unit-I			
1st	1	**Concrete as Structural Material:** Introduction	
	2	Preparation of concrete, grades of concrete	
	3	Advantages of concrete, concept of quality control.	
	4	**Concrete Making Materials:** Cement, tests on cement (physical tests)	
2nd	5	Types of Portland cement, various types of cement-ordinary Portland cement,	
	6	Rapid hardening cement, low heat cement, sulphate resistant cement,	
	7	Portland-pozzolona cement, high strength Portland cement	
	8	High alumina cement, waterproof cement, white Portland cement,	
3rd	9	Hydrophobic cement, colored Portland cement	
	10	Aggregates, classification of aggregates based on petrography, size, shape and textures	
	11	Deleterious substances in aggregates, bulking of fine aggregates, sieve analysis, grading of aggregates as per IS-383-1970	
	12	Fineness modulus, Maximum size of aggregate, Quality of mixing water, curing water	
Unit-II			
4th	13	**Properties of Concrete:** Introduction	
	14	Workability, factors influencing workability, measurement of workability	
	15	Requirements of workability, properties of hardened concrete, stress and strain characteristics of concrete	

	16	Young's modulus of concrete, creep and shrinkage of concrete, permeability of concrete	
5th	17	Durability of concrete sulphate attack, fire-resistance, thermal properties of concrete	
	18	Construction joints, expansion and contraction joints.	
	19	**Production of Concrete:** Introduction,	
	20	Batching of materials, mixing of concrete materials,	
6th	21	Transportation of concrete, compaction of concrete,	
	22	Ready mixed concrete, vibrators, Internal vibrators,	
	23	External vibrators	
	24	Concrete curing and formwork removal	
7th	**1st Minor Test**		
Unit-III			
8th	25	**Non-Destructive Testing of Concrete:** Significance of Non-Destructive Testing	
	26	Rebound Hammer, Ultrasonic pulse velocity techniques	
	27	Penetration techniques, pullout tests, vibration methods	
	28	Radioactive techniques, Cover meter, core-tests	
9th	29	**Deterioration of Concrete & its Prevention**	
	30	Causes of concrete deterioration	
	31	Deterioration by water, surface weir, frost action	
	32	Deterioration by chemical reactions	
10th	33	Sulphate attack, alkali-aggregate reaction	
	34	Sulphate attack, alkali-aggregate reaction	
	35	corrosion of embedded steel in concrete	
	36	Prevention of deterioration of concrete	
Unit-IV			
11th	37	**Repair Technology for Concrete Structures:** Symptoms and diagnosis of distress	
	38	evaluation of cracks, repair of cracks, common types of repairs	
	39	distress in fire damaged structures, underwater repairs	
	40	**Special Concrete:** Light weight concrete	
12th	41	definition and its properties, applications, high strength concrete	
	42	Mass Concrete, waste material based concrete, shortcrete	
	43	Fiber reinforced concrete: Materials Fibers types and properties	
	44	Ferrrocement	
13th	45	Ferrrocement	
	46	Polymer concrete composites	
	47	Heavy weight concrete for radiation shielding	
	48	Heavy weight concrete for radiation shielding	
14th	**2nd Minor test**		
15th	49	**Prestressed Concrete**: Introduction, basic concepts	
	50	Classifications and types of prestressing	
	51	Prestressing systems, properties of materials	
	52	Pre tensioned and post tensioned concrete elements	

Name of the Faculty :	Mr.ManikGoyal
Discipline :	B.Tech in Civil Engineering
Semester :	VII (4th Year)
Subject :	CE-409EConcrete Structures-II(Drawing)
Lesson Plan Duration :	15 Weeks (from AUG, 2018 to DEC, 2018)
Work Load (Lecture / Practical) per week (in hrs.) :	Practical – 02

Lesson Plan

Week	Practical		
	Day	**Topics / Experiments**	**Date**
1st		Drawing sheets showing reinforcement details of flat slabs.(GP-1)	
		Drawing sheets showing reinforcement details of flat slabs.(GP-2)	
2nd		Drawing sheets showing reinforcement details of underground water tank.(GP-1)	
		Drawing sheets showing reinforcement details of underground water tank .(GP-2)	
3rd		Drawing sheets showing reinforcement details of overhead water tank.(GP-1)	
		Drawing sheets showing reinforcement details of overhead water tank .(GP-2)	
4th		Drawing sheets showing reinforcement details of combined footing.(GP-1)	
		Drawing sheets showing reinforcement details of combined footing .(GP-2)	
5th		Drawing sheets showing reinforcement details of pile footing.(GP-1)	
		Drawing sheets showing reinforcement details of pile footing .(GP-2)	
6th		Drawing sheets showing reinforcement details of raft footing.(GP-1)	
		Drawing sheets showing reinforcement details of raft footing .(GP-2)	
7th		**MINOR TEST I**	
8th		**VIVA – VOCE Group - 1**	

		VIVA – VOCE Group - 2	
9th		Drawing sheets showing reinforcement details of T-beam bridge. (GP-1)	
		Drawing sheets showing reinforcement details of T-beam bridge. (GP-2)	
10th		Drawing sheets showing reinforcement details of T-beam bridge. (GP-1)	
		Drawing sheets showing reinforcement details of T-beam bridge. (GP-2)	
11th		Drawing sheets showing reinforcement details of T-beam bridge. (GP-1)	
		Drawing sheets showing reinforcement details of T-beam bridge. (GP-2)	
12th		Drawing sheets showing reinforcement details of Silos. (GP-1)	
		Drawing sheets showing reinforcement details of Silos. (GP-2)	
13th		Drawing sheets showing reinforcement details of Bunker. (GP-1)	
		Drawing sheets showing reinforcement details of Bunker. (GP-2)	
14th		**MINOR TEST II**	
15th		**VIVA – VOCE Group - 1**	
		VIVA – VOCE Group - 2	

Name of the Faculty :	Ms.ManjuGodara
Discipline :	B.Tech in Civil Engineering
Semester :	VII (4th Year)
Subject :	CE-411E Irrigation Engg. Design & Drawing
Lesson Plan Duration :	15 Weeks (from AUG, 2018 to DEC, 2018)
Work Load (Lecture / Practical) per week (in hrs.) :	Practical – 02

Lesson Plan			
Week	**Practical**		
	Day	**Topics / Experiments**	**Date**
1st		Design of weirs and barrages on permeable foundation for surface and sub surface flow conditions (Group 1)	
		Design of weirs and barrages on permeable foundation for surface and sub surface flow conditions (Group 2)	
2nd		Design of weirs and barrages on permeable foundation for surface and sub surface flow conditions (Group 1)	
		Design of weirs and barrages on permeable foundation for surface and sub surface flow conditions (Group 2)	

3rd		Design of Guide Banks (Group 1)	
		Design of Guide Banks (Group 2)	
4th		Flood Routing using step by step method (Group 1)	
		Flood Routing using step by step method (Group 2)	
5th		Design of Syphon Aqueduct.(Group 1)	
		Design of Syphon Aqueduct.(Group 2)	
6th		Design of Sarda type fall & sloping glacis fall.(Group 1)	
		Design of Sarda type fall & sloping glacis fall.(Group 2)	
7th		**MINOR TEST I**	
8th		**VIVA – VOCE Group - 1**	
		VIVA – VOCE Group - 2	
9th		Design of Sarda type fall & sloping glacis fall.(Group 1)	
		Design of Sarda type fall & sloping glacis fall.(Group 2)	
10th		Seepage line in a homogeneous earth dams on impermeable foundation with horizontal drainage.(Group 1)	
		Seepage line in a homogeneous earth dams on impermeable foundation with horizontal drainage.(Group 2)	
11th		Design of Ogee Spillway and stilling basin (Group 1)	
		Design of Ogee Spillway and stilling basin (Group 2)	
12th		Design of Ogee Spillway and stilling basin .(Group 1)	
		Design of Ogee Spillway and stilling basin .(Group 2)	
13th		Design of Syphon Aqueduct (Group 1)	
		Design of Syphon Aqueduct (Group 2)	
14th		**MINOR TEST II**	
15th		**VIVA – VOCE Group - 1**	
		VIVA – VOCE Group - 2	