Shri Shankaracharya Institute of Professional Management & Technology
Department of Civil Engineering

Class Test – II   Session: July-December, 2021   Month – December

Semester – 7th   Subject – EE- II Code – 320733(20)

SSIPMT

Time Allowed: 2 hrs.   Max Marks: 40

Note: - In Part I & II, Question A is compulsory and attempt any two from B, C & D.

Q. No.	Questions	Marks	Levels of Bloom's taxonomy	CO's
	Part I			
A.	Explain "Attached Growth System" and "Suspended Growth System" with relevant examples to sewage treatment processes.	[4]	Understand	CO3
B.	Design a septic tank for 200 persons with a water supply of 125 LPCD. Assume other relevant data and mention it also.	[8]	Apply	CO3
C.	Population of a town is 20000 with an assured water supply of 150 LPCD. BOD of the waste water is 150mg/l. Design an oxidation pond for the waste water treatment for the town. Assume any required data if necessary.	[8]	Apply	CO3
D.	Determine the dimensions of a high-rate trickling filter for the following data: 1) Sewage Flow = 3 MLD 2) Recirculation ratio= 1.5 3) BOD of raw sewage = 250 mg/l 4) BOD removed in primary tank = 25% 5) Final effluent BOD desired = 30 mg/l Also calculate by what % the diameter will have to be modified if it is to be designed as a standard rate trickling filter for above data?	[8]	Apply	CO3
	Part II			
A.	Describe Oxygen Sag/Deficit curve with proper explanations.	[4]	Understand	CO4
B.	Explain the following: 1) Self-Purification process of streams 2) Anaerobic Sludge Digestion tank Draw graphs/diagrams wherever necessary.	[8]	Analyze	CO4
C.	Find out the volume of an anaerobic digestion tank for 5 MLD of domestic waste water treatment plant having 60% suspended solid removal efficiency and concentration of 250mg/l. Moisture content of influent sludge is 96%, Initial volatile solids content in sludge is 70%, Volatile solids destroyed is 65%, digested sludge solid concentration is 80%, Specific Gravity of primary sludge is 1.03, Specific Gravity of digested sludge is 1.04, Mean cell residence time is 15 days.	[8]	Apply	CO4
D.	A town on the bank of a river discharges 18000m3/day of wastewater into the river. The wastewater has a BOD_5 of 20mg/l and a decay constant of 0.12/day. The river has a flow rate of 0.43 m3/s and $(BOD)_u$ of 5mg/l. The DO of the river is 6mg/l and DO of the waste-water is 0.4mg/l. Calculate the DO, Initial BOD of the river after mixing. Also find the ultimate BOD. If the area of the stream is 90 m^2. Calculate the BOD(in mg/l) at a distance of 75 Km downstream from the mixing point.	[8]	Apply	CO4

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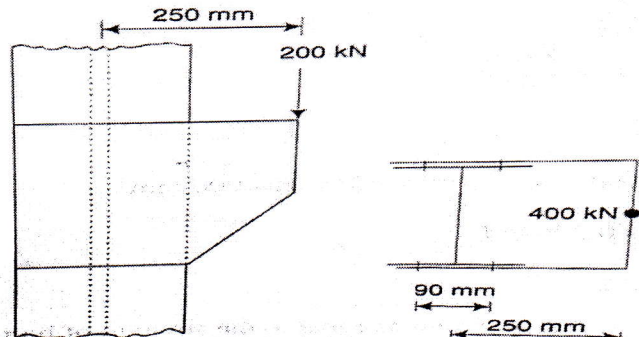Class Test – II Session: July – Dec, 2021 Month –December

Semester – 7th Subject – Structural Engineering Design - III

Code – 320731(20)

Time Allowed: 2 hrs   Max Marks: 40

Note: - (i) Each question carrying equal marks worth 20 marks part (a) is compulsory.
(ii) Steel table and IS 800 : 2007 is permitted.

Q. No.	Questions	Marks	Levels of Bloom's taxonomy	CO's
Q. (1) A	(i) Sketch the bolted Gusset base and level it properly.	[3]	Understand	CO3
	(ii) Write three conditions of design of moment resisting base plate with pressure distribution diagram.	[3]	Remember	CO3
B	A column ISHB 350 @ 661.2 N/m carries an axial compressive factored load of 1650 kN. Design a suitable welded gusset base. The base rests on M20 grade of concrete.	[14]	Create	CO3
C	Design a MOT simply supported gantry girder for the given datas Span of gantry girder = 5m. Span of claim girder = 15m. crane capacity = 230kN Self wt. Of crane girder excluding trolley = 230kN self wt of trolley = 30 kN Minimum hook approach = 1.2 m. Distance between wheels = 3.5 m c/c Self wt of rails = 0.3 kN/m.	[14]	Create	CO3
Q. (2) A	(i) Explain different types of loads acting on a gantry girder	[3]	Understand	CO4
	(ii) Explain flexible, semi rigid and rigid connections.	[3]	Understand	CO4
B	Design a stiffened seat connection for and ISMB 350 @ 514 N/m. transmitting an end reaction of 350 kN(due to factored load) to a column section ISHB 300 @ 576.8 N/m. The steel is of grade Fe410 and bolts of grade 4.6	[14]	Create	CO4
C	Design a bolted bracket connection to support an end reaction of 400 kN because of the factored loads supported by the beam. The eccentricity of the end reaction is as shown in Fig. The steel used is of grade Fe 410. Use bolts of grade 4.6. The thickness of bracket plate may be taken as 10mm. The column section is ISHB 150 @ 300.19 N/m. 	[14]	Create	CO4

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Class Test – II Session: July – Dec, 2021 Month – December

Semester – 7thSubject – Quantity Surveying and Cost Evaluation

Code – 320734(20)

Time Allowed: 2 hrs   Max Marks: 40

Note: - Question No. 1 is Compulsory from each section, Attempt any two form 2, 3, 4.

Q. No.	Questions	Marks	Levels of Bloom's taxonomy	CO's
	Unit-I			
1	Describe purpose of SOR.	[4]	Understand	3
2	Analyze the rate of first class brick work in super structure with 20x20x10 cm brick with 1:3 cement sand mortar per cubic meter.	[8]	Apply	3
3	Estimate the quantities of materials for cement concrete foundation 1:1.5:3	[8]	Apply	3
4	Describe the following terms: 1. Approximate Estimate 2. Plinth Area Estimate 3. Cube Rate Estimate 4. Revised Estimate	[8]	Understand	1
	Unit-II			
1	Enlist Factor affecting of contract.	[4]	Understand	4
2	Explain the Types of Contract.	[8]	Understand	4
3	Differentiate Between General and Detailed Specification.	[8]	Understand	4
4	Describe the various document required for the Tender.	[8]	Understand	4

Note: -Part A is compulsory in each section. Attempt any two from part B, C and D. Assume suitable data, if required, and mention it clearly.

Q. No.	Questions	Marks	Levels of Bloom's taxonomy	CO's
	Section I			
A	Differentiate between true regime and final regime.	4	Understand	CO2
B	An irrigation canal has been constructed with following parameters: Full supply discharge = 45 cumecs Bed width = 30 meters Full slope depth = 1.8 Side slope = ½ : 1 Bed slope = 1 in 6600 Manning N = 0.0225 Critical velocity ratio = 1 Check whether the section designed satisfies Kennedy's theory.	8	Analyze	CO2
C	Design an irrigation channel in alluvial soil for the given data: Full supply discharge= 15 m^3/s Lacey's silt factor = 1.0 Channel side slope = ½ : 1	8	Analyze	CO2
D	Write short notes on 1. Silting of canal and its control 2. Watershed canal and Contour canal	8	Understand	CO2
	Section II			
A	Describe the causes of water logging.	4	Understand	CO3
B	Design a concrete lined channel to carry a discharge of 350 cumecs at a slope of 1 in 5000. The side slope of the channel may be taken as $1\frac{1}{2}$:1. The value af n for the lining is 0.014. assuming the limiting velocity in the channel as 2 m/sec.	8	Analyze	CO3
C	Write short notes on 1. Types of outlets 2. Flexibility and proportionality	8	Understand	CO3
D	Design a concrete lined channel to carry a discharge of 50 cumecs at a bed slope of 0.025 percent. The side slope of the channel is 40^0 with the vertical. The values of the manning's N may be taken as 0.018.	8	Analyze	CO3

Shri Shankaracharya Institute of Professional Management & Technology
Department of Civil Engineering
Class Test – II Session: July-December, 2021 Month – November
Semester – 7th   Subject – TE Code – 320750(20)
Time Allowed: 2 hrs.   Max Marks: 40
Note: - In Part I & II, Question A is compulsory and attempt any two from B, C & D.

Q. No.	Questions	Marks	Levels of Bloom's taxonomy	CO's
	Part I			
A.	Define Traffic Engineering.	[4]	Understand	CO3
B.	Explain various types of traffic sign with sketches.	[8]	Understand	CO3
C.	What are the advantages and disadvantages of traffic signals.	[8]	Understand	CO3
D.	Explain the road geometry on traffic safety & design control criteria.	[8]	Understand	CO4
	Part II			
A.	Write short note on Pollution Problem in cities.	[4]	Understand	CO4
B.	Describe any two methods to control the noise generated from traffic.	[8]	Understand	CO5
C.	What is EIA,also explain the benefits of EIA.	[8]	Understand	CO5
D.	At right angled intersection of two roads,road-1has 4 lanes with a total width of 12.0 m & Road-2 has 2 lanes with a total width of 6.6m.The volume of traffic approaching the intersection during the design hour are 900 & 743PCU/Hr on the two approaches of road-1 and 278 & 180 PCU/hr on 2 approaches of road-2.Design the signal timing as per IRC.	[8]	Analyse	CO3