Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

EIGHTH SEMESTER B.TECH DEGREE EXAMINATION, MAY 2019

Course Code: CE402

Course Name: ENVIRONMENTAL ENGINEERING – II

Max. Marks: 100 Duration: 3 Hours

PART A

Answer any two full questions, each carries 15 marks.

			Marks
1	a)	Define a) Sullage b)Sewage c)Storm water d) Night soil	(4)
	b)	Explain Time of concentration	(3)
	c)	Determine the size of circular sewer for a discharge of 700lps running half full. Assume i=0.0001 and n=0.015	(8)
2	a)	Discuss the merits & demerits of separate and combined system of sewage	(8)
	b)	Discuss the purposes served by an inverted siphon with help of a neat sketch.	(5)
	c)	Explain the term relative stability.	(2)
3	a)	Define a)BOD b)COD	(4)
	b)	Explain physical characteristics of sewage	(6)
	c)	The 5 day BOD of a sewage sample is 150 mg/l. Determine its 3 days 20^0C BOD. Assume deoxygenation constant at 20^0C as 0.1	(5)

PART B

Answer any two full questions, each carries 15 marks.

4	a)	Give the flow diagram of a conventional municipal wastewater treatment.	(3)
	b)	A city discharges 100 m^3/s of sewage into a river, which is fully saturated with oxygen flowing at the rate of 1500 m^3/s and with a velocity of 0.2 m/s. The 5 days BOD of sewage at the given temperature is 250 mg/l. Find when and where the critical D.O deficit will occur in the downstream portion of the river and what is its amount? Assume coefficient of purification of the stream (f) as 4 and coefficient of deoxygenation as 0.1.	(12)
5	a)	Explain sludge volume index.	(5)

b) What are the limitations of activated sludge process? (5)

c) Write short notes on rotating biological contactors. (5)

6 a) Compare a standard rate trickling filter with a high rate one. (7)

b) A rectangular grit chamber is designed to remove particle with a diameter 0.2 mm and specific gravity 2.65. The settling velocities of these particles are found to be 0.02 m/s. A flow through velocity of 0.30 m/s will be maintained by the proportioning weir. Determine the channel dimensions for a maximum wastewater flow of 10,000 m^3/day. (8)

PART C

Answer any two full questions, each carries 20 marks.

7 a) Design an imhoff tank to treat the sewage from a small town with a population of 20000 persons ,with sewage flow rate of 180 litres per day (14)

b) What are the advantages and disadvantages of oxidation ponds? (6)

8 a) What are the features of acid regression stage and alkaline fermentation stage of sludge digestion? (10)

b) Explain the working of an Up flow Anaerobic Sludge Blanket (UASB) reactor. Discuss any three drawbacks of UASB. (10)

9 a) What are the methods of sludge disposal. (6)

b) Explain sludge drying bed? (8)

c) What are the various factors affecting sludge digestion? (6)

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APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

EIGHTH SEMESTER B.TECH DEGREE EXAMINATION(S), OCTOBER 2019

Course Code: CE404

Course Name: CIVIL ENGINEERING PROJECT MANAGEMENT

Max. Marks: 100 Duration: 3 Hours

PART A

Answer any two full questions, each carries 15 marks. Marks

1 a) What are the advantages and limitations of Bar Charts? Explain. (5)

b) Following are the durations of activities of a project. (10)

Activity	A	B	C	D	E	F	G
Predecessors	-	-	A	B	B	C, D	E
Duration (weeks)	11	7	9	13	8	8	9

Draw the network and find the critical path and minimum Project duration. Also calculate the floats of activities.

2 a) Explain various types of floats. (8)

b) What is the need of codification in a construction project? Explain cost and finance accounting codes. (7)

3 a) Write short notes on construction schedule and equipment schedule. (5)

b) Crash the given network using the details given in table and find the optimum cost and least project duration. (10)

ACTIVITY	PREDECESSOR	DURATION (DAYS)		COST (RS)	
		NORMAL	CARSH	NORMAL	CARSH
A	-	6	4	5000	6800
B	A	10	7	4000	7750
C	A	12	8	5000	8000
D	B	8	4	7000	8400
E	C	6	3	5000	6950
F	D, E	4	2	7000	7500

PART B

Answer any two full questions, each carries 15 marks.

4 a) Discuss the various causes of disputes that can occur during the execution of a project. (7)

b) Explain different modes of settlement of disputes. (8)

5 a) Explain the method of determining the cost of resources in a construction project. (7)

b) Discuss the common ethical problems encountered in civil engineering works. (8)

6 a) Write a note on managing a Project Management Information System (PMIS), explaining the processes involved and the tools and techniques employed. (5)

b) What are the characteristics desired for the information that contributes to PMIS? (5)

c) What are the advantages of an efficient PMIS? (5)

PART C

Answer any two full questions, each carries 20 marks.

7 a) What is a tender? Indicate the information provided in the tender notice with example. (10)

b) What constitute tender documents and what general information should be furnished in such documents? (10)

8 a) What is inventory control and what are its objectives? (10)

b) Explain ABC analysis is detail. (10)

9 a) State briefly the methods to achieve quality control on concrete. (10)

b) What are the methods to ensure safety in road construction? (10)

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APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

EIGHTH SEMESTER B.TECH DEGREE EXAMINATION, MAY 2019

Course Code: CE474

Course Name: MUNICIPAL SOLID WASTE MANAGEMENT

Max. Marks: 100 Duration: 3 Hours

PART A

Answer any two full questions, each carries 15 marks. Marks

1 a) Classify solid waste based on source and define each. (10)

b) What are the physical characteristics of MSW? (5)

2 a) Using the data for a MSW sample provided below, find the average moisture content of the sample. Base your calculations on a 100 kg sample size. (5)

Component	Moisture content (%)	Weight (%)
Paper waste	7	25
Yard waste	55	18
Food waste	65	20
Plastic	2	5
Wood	20	8
Glass	3	7
Metals	3	9
Textiles	12	8

b) What are the advantages of estimating the quantity of waste generated? (5)

c) Write the impact of industrial waste on environment (5)

3 a) Estimate the energy content on dry and ash free dry basis of a solid waste sample with the following compositions. Assume over all moisture and ash content of solid wastes is 21% and 5% respectively. Assume a mass of 100kg. (10)

Component	Food waste	paper	Card board	plastics	Garden Trimming	Wood	Tin can
% by weight	15	45	10	10	10	5	5
Energy kJ/kg	4650	16750	16300	32600	6500	18600	700

b) What are the impacts of C&D waste on environment? (5)

PART B

Answer any two full questions, each carries 15 marks.

4	a)	Write a note on mechanical volume reduction.	(5)
	b)	With a flow chart, explain recovery of resources from solid waste.	(10)
5	a)	What is the role of transfer station in solid waste management?	(5)
	b)	Explain the procedure adopted for chemical and biological conversion of solid waste.	(10)
6	a)	What is the significance of component separation in solid waste management?	(5)
	b)	Describe magnetic separation and the equipment used for it.	(5)
	c)	What are the various collection systems in MSWM?	(5)

PART C

Answer any two full questions, each carries 20 marks.

7	a)	Write the Indore process and its advantages.	(8)
	b)	With neat sketch explain the various parts of an Incinerator.	(8)
	c)	Explain the composition of Incinerator effluent gas.	(4)
8	a)	Explain vermi composting.	(7)
	b)	Define incineration and its merits and demerits	(8)
	c)	What are the benefits of composting?	(5)
9	a)	Explain the components of Sanitary landfill with neat sketch.	(14)
	b)	Write briefly on anaerobic digestion of waste?	(6)