AR16

CODE: 16CE4033 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
IV B.Tech II Semester Regular Examinations, September, 2020

Transportation Engineering-II
(Civil Engineering)

Time: 3 Hours **Max Marks: 70**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1 (a) What is meant by wear of Rails? Enumerate the various types of Rail wear and enlist the methods by which it can be measured. (6M)

(b) What is Ballast? List out different types of ballast and enumerate the requirements of Good ballast (8M)

(OR)

2 (a) What are the ideal requirements of Rail fastenings? (6M)

(b) What are Sleepers? What are the advantages and disadvantages of Concrete sleepers? (8M)

UNIT-II

3 (a) Explain the difference between cant deficiency and negative super elevation (6M)

(b) With usual notation, derive the expression for super elevation for B.G, M.G and N.G track. (8M)

(OR)

4 (a) Define: i) super elevation ii) Negative cant iii) Cant deficiency iv) Grade compensation on curves (8M)

(b) Compute the maximum permissible speed for the following data on a curve of high speed B.G for the following data. Degree of curve = 1.2, Amount of super elevation = 8 cm, Length of transition curve = 150 m, Maximum sanctioned speed likely to be 145 kmph. (6M)

UNIT-III

5	(a)	What essential purposes are served by Signaling and Interlocking? What do you understand by route relay interlocking?	(8M)
	(b)	What are the objectives of Signaling in Railways?	(6M)
		(OR)	
6	(a)	What are the different components of a stop signal? Explain with the help of a neat diagram.	(7M)
	(b)	With a neat sketch show the details of acute angle crossing. Indicate (i) actual, (ii) theoretical rose of crossing.	(7M)

UNIT-IV

7	(a)	Explain the various Surveys to be conducted and the data to be collected for Airport site selection	(8M)
	(b)	What are the factors which influence the airport site selection?	(6M)
		(OR)	
8	(a)	List out Aircraft characteristics to be considered in planning an airport planning and design.	(6M)
	(b)	Briefly explain about computation of runway length and correction for runway length.	(8M)

UNIT-V

9	(a)	Government is planning a Good Port at one Sea Shore. What are the requirements of good Port explain it to Port In-charge?	(6M)
	(b)	What are the uses of dry and wet docks? What is the role of ware houses?	(8M)
		(OR)	
10	(a)	List the navigational aids and explain their importance?	(8M)
	(b)	Classification of harbors and docks	(6M)

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CODE: 16CE2005 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech I Semester Regular Examinations, September-2020

ENVIRONMENTAL ENGINEERING-I

(Civil Engineering)

Time: 3 Hours **Max Marks: 70**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1. a Write a note on water demand for residential/domestic use for human consumption with breakup for various daily activities such as cleaning, cooking etc., Also write about the per animal demand of water for domestic animals per day. 6

   b State any three formulae used for computing fire demand of a town. Explain the terms in these formulae. Compute the fire demand for a town of population 4,00,000 using any two formulae and compare the results. 8

(OR)

2. a What are the important physical and chemical parameters of water that are tested for checking potability? Explain how any three physical and any three chemical parameters are tested in the laboratory for checking compliance. 6

   b State any four methods for forecasting the population of a town. Mention their formulae, explain the terms in the formula. Comment on the applicability of these formulae, as in which situations they are suited for application. 8

UNIT-II

3. a Write a note on continuous and intermittent systems for distribution of treated water. Explain the merits and demerits of these two systems. Which of these systems is used more in India? Why? 6

   b Classify water intakes based on their position, condition and location. Explain any three types of intakes with neat sketches. Also explain when a submerged intake is provided in a lake. 8

(OR)

4. a Write a note on laying and testing of pipes for distribution of treated water. 4

b Explain the 4 types of layouts of distribution networks for water supply system with neat sketches. Also mention the advantages of each system and which context they are preferred over others. 10

UNIT-III

5. a Explain about any four design elements which are important in continuous flow type sedimentation tanks. 8

b With the help of a neat sketch, explain how a hopper bottom tank with vertical flow works in removing suspended particles. 6

(OR)

6. a What is clarification? What is the difference between Coagulation and Flocculation? Draw the cross sectional sketch of a clarifier to show the stages of coagulation, flocculation and clarification. 10

b Compare the performance of alum and iron salts as coagulants. 4

UNIT-IV

7. a What are the four different types of purifying actions that take place when water passes through filter media? 4

b Write at least 10 differences between design, construction, operation and maintenance of slow sand and rapid sand gravity type of filters. 10

(OR)

8. a Name any two physical and two chemical methods for disinfection of water at the household level. 4

b What is Residual Chlorine? With the help of a sketch, explain the 4 stages of Chlorination and the significance of these stages in disinfection of public water supplies. 10

UNIT-V

9. a Explain the following methods for recovering energy form solid waste including the preprocessing necessary to recover energy. 14
   i) RDF (refuse derived fuels)
   ii) Gasification
   iii) Pyrolysis

(OR)

10. a Compare and contrast Aerobic and Anaerobic composting methods for managing biodegradable solid waste. 8

b Write a note on processing solid wastes before final disposal. 6

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AR16

CODE: 16EE4029 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech II Semester Regular Examinations, September, 2020

UTILIZATION OF ELECTRICAL ENERGY

(Electrical and Electronics Engineering)

Time: 3 Hours **Max Marks: 70**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1.	a)	What are the advantages of electric drive?	6M
	b)	What do you understand by matching of speed torque characteristics of load and motor?	8M
		(OR)	
2.	a)	Explain the different types of drives? Explain what is mean by load equalization?	6M
	b)	At full load of 20 h.p., temperature rise of a motor is 30 deg.c. after one hour and 45 deg.c. after two hours. Find (i) the temperature on full load (ii) Heating time constant of motor (iii) half hour rating, iron losses which remains constant are 80% of copper losses at full load.	8M

UNIT-II

3.	a)	What are different methods of electric heating and which method you would recommend for water storage heating of buildings?	6M
	b)	Explain briefly resistance heating and induction heating?	8M
		(OR)	
4.	a)	Compare resistance and arc welding?	8M
	b)	What are the qualities of a good welding?	6M

UNIT-III

5. a) What is the difference between plane angle and solid angle? What is meant by polar curve? 8M
   b) What advantages and disadvantages of has sodium lighting over that of filament lamp? 6M

(OR)

6. a) Explain different types and design of lighting? 6M
   b) It is required to provide an illumination of 100lumens/m^2 in a workshop hall 40 m. X 10 m.. Assume the depreciation factor as 0.8, coefficient of utilisation as 0.4 and efficiency of lamps as 14 lumen/watt, calculate the number and rating of lamps when seven trashes provided mutual distance of 5 m. 8M

UNIT-IV

7. a) What are different systems of electrification and their merits and demerits? 6M
   b) Derive the expression for crest speed , acceleration and retardation for trapezoidal speed time curve? 8M

(OR)

8. a) What are the factors affecting the scheduled speed of a train? 6M
   b) A train is required to run between two stations 1.6 Km. Apart at an average speed of 43 Kmph. The run is to be made to a simplified quadrilateral speed time curve. If the maximum speed is to be limited to 64 Kmph, acceleration to 2 Kmph and coasting and braking retardation to 0.16 and 32 Kmphps respectively, determine the duration of acceleration ,coasting and braking periods. 8M

UNIT-V

9. a) What are the different types of functions performed by the tractive effort developed by a traction unit. 7M
   b) What is coefficient of adhesion? How the value of coefficient of adhesion affects the slipping and skidding of the wheels of traction unit? 7M

(OR)

10. A train weighing 400 tonne has speed reduced by regenerative braking from 40 to 20 Kmph over a distance of 2 Km. On a down gradient of 20%. Calculate the electrical energy and average power returned to the line. Tractive resistance is 40N/Tonne and allow rotational inertia of 10% and efficiency of conversion of75%. 14M

AR16

CODE: 16ME4034 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech II Semester Regular Examinations, September, 2020

PRODUCTION PLANNING AND CONTROL

(Mechanical Engineering)

Time: 3 Hours **Max Marks: 70**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1.	a)	Explain with neat sketch pre-planning, Planning, and Control functions of PPC.	8M
	b)	Explain Quantitative Methods of Forecasting.	6M
		(OR)	
2.	a)	Differentiate Production Planning and Production Control.	6M
	b)	Explain the Methods of Forecasting .	8M

UNIT-II

3.	a)	What is Aggregate Planning? Explain in Detail.	7M
	b)	What is MPS explain its Functions.	7M
		(OR)	
4.	a)	Explain Assembly Line Balancing? Explain the process preparation of MPS.	6M
	b)	Describe Capacity Planning. Enumerate Factors effecting Capacity Planning.	8M

UNIT-III

5.	a)	Explain P-System and Q-System, ABC analysis.	9M
	b)	Write Short notes on: JIT, KANBAN System.	5M
		(OR)	
6.	a)	What is EOQ? Explain in detail the functions of Inventory Management system.	8M
	b)	Write Short notes on :MRP, MRP II and Benefits of JIT.	6M

UNIT-IV

7.	a)	Explain the Characteristics of BPR.	5M
	b)	Explain the Measures of Reliability, Failure, Maintainability of a system.	9M
		(OR)	
8.	a)	Explain the concept of Reliability of a System with Component in Series, Parallel and Combined Series	9M
	b)	Explain the Need for BPR and the Steps involved in BPR.	5M

UNIT-V

9.	a)	Explain the Routing procedure and Dispatching procedure.	9M
	b)	Explain the Applications of computer in production planning and control.	5M
		(OR)	
10.	a)	Explain Route sheets and BOM with neat sketches.	7M
	b)	Explain : a) Activities of dispatcher b) Factors Effecting routing Procedure.	7M