AR16

CODE: 16CE4033 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
IV B.Tech II Semester Supplementary Examinations, November-2021

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)	Draw a neat cross section of permanent way and explain its component parts	7 Marks
	b)	Explain wave theory and percussion theory related to creep	7 Marks
		(OR)	
2.		Bring out comparison between various ballast materials in terms of advantages ,disadvantages and suitability of various ballast materials	14 Marks

UNIT-II

3.	a)	Calculate the maximum permissible speed on a curve of high speed for the following data on a B.G track. Degree of curve 1.2^{o}, amount of super elevation 8.0 cm, length of transition curve 125 m, maximum speed of the section likely sanction speed = 150 kmph	7 Marks
	b)	Derive an expression to establish relationship among gauge, speed, radius of curvature and super elevation	7 Marks
		(OR)	
4.	a)	Write in detail about various gradients used on a railway track along with minimum values of each gradient.	7 Marks
	b)	Write a short notes on the following a) grade compensation b) Negative super elevation c) provision of check rails on curves	7 Marks

UNIT-III

5.	a)	Draw a neat labelled sketch of left hand turn out and explain its component parts	7 Marks
	b)	Write a short note on the following with neat sketch a) Fixed signals b) Stop signal	7 Marks
		(OR)	
6.	a)	Write a short notes on the following a)Heel clearance or Heel divergence b) Flange way clearance c) Switch angle d) Flare	7 Marks
	b)	Write a short notes on the following a) Under cut Switches b) Over riding switches c) Straight cut switches	7 Marks

UNIT-IV

7.	a)	Explain in detail various factors affecting site Selection of Airport	7 Marks
	b)	Write a detailed note on runway lightning system with neat sketch	7 Marks
		(OR)	
8.	a)	Explain various corrections that are applied for a basic run way length in case of an airport.	7 Marks
	b)	Explain type 1 wind rose diagram with a neat sketch	7 Marks

UNIT-V

9.	a)	Define port. Write a detailed note on requirements of a good port	6 Marks
	b)	Write a detailed note on classification of harbours based on various criteria	8Marks
		(OR)	
10.	a)	Explain in detail the working principle of light house with a neat sketch	8 Marks
	b)	Define break water. Explain any one type	6 Marks

AR16

CODE: 16EE4029 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech II Semester Supplementary Examinations, November-2021

UTILIZATION OF ELECTRICAL ENERGY

(Electrical & 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 factors govern the selection of motor for particular application?	7M
	b)	What are the advantages and disadvantages of d.c. and a.c. electric drive?	7M
		(OR)	
2.	a)	Derive an expression for the temperature rise of an electric drive? State the assumptions made.	6M
	b)	What are the different classification of load and how they affect the motor selection? What is the main requirement to accelerate load of high moment of inertia?	8M

UNIT-II

3.	a)	Why electric heating is preferred over other forms of heating?	6M
	b)	What are specific advantages and special applications of dielectric heating?	8M
		(OR)	
4.	a)	What are different types of electric welding?	6M
	b)	What is the technique of welding metal deposition by electric arc?	8M

UNIT-III

5.	a)	Define luminous flux, luminous intensity, M.H.C.P. and M.S.C.P.?	8M
	b)	Compare fluorescent and filament lamps on basis of quality of light, capital and running costs ?	6M
		(OR)	
6.	a)	What is stroboscopic effect ,explain briefly and also explain the basic principles of light control?	8M
	b)	A room 12 m. X 8 m. X4 m. is to have indirect lighting giving illumination of 80 lux on working plane 70 cm. Above floor, coefficient of utilisation is assumed to be 0.5 and maintenance factor 0.8. Find out the number of lamps and their rating, lamp efficiency may be taken as 14.75 lumens/watt.	6M

UNIT-IV

7.	a)	Compare d.c and a.c system of traction?	6M
	b)	Derive the expression for crest speed, acceleration and retardation for Quadrilateral speed time curve?	8M

(OR)

8.	a)	What are the disadvantages of 25KV a.c. traction system?	6M
	b)	An electric train is to have a braking retardation of 3.2Kmphps. If the ratio of maximum speed to average speed is 1.3, the time for stops is 26 seconds and acceleration is 0.8 Kmphps, find the schedule speed for a run of 1.5Km. Assume simplified trapezoidal speed time curve.	8M

UNIT-V

9.	a)	What do you understand by the specific energy consumption and what factors effecting it?	7M
	b)	What are the factors affecting slip 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

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CODE: 16ME4034 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech II Semester Supplementary Examinations, November-2021

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)	Briefly discuss about organization of PPC	7M
	b)	Discuss different types of production with their merits and demerits	7M

(OR)

2.	a)	Explain judgemental techniques in forecasting	7M
	b)	Discuss about time series analysis and moving average method in forecasting	7M

UNIT-II

3.		Discuss different Aggregate Planning methods	14M

(OR)

4.		Discuss in detail Master Production Schedule Formation along with required inputs and outputs	14M

UNIT-III

5.	a)	Write about objectives of inventory management? Describe different types of inventories	7M
	b)	Discuss about P & Q inventory control systems in inventory	7M

(OR)

6.	a)	Explain how JIT is implemented in an industry	7M
	b)	What is MRP II and briefly discuss about it	7M

UNIT-IV

7.	a)	What is reliability of a system and what are the factors affecting it?. Discuss the reliability increasing techniques	7M
	b)	Explain about reliability life testing	7M

(OR)

8.	a)	Explain the Procedure involved in Business Process Re-engineering	7M
	b)	Explain the reasons why Business Process Re-engineering is necessary in an organization.	7M

UNIT-V

9.	a)	What is routing and describe how the route sheet is prepared	7M
	b)	Write about the objectives of routing	7M

(OR)

10.	a)	Discuss the application of computer in PPC	7M
	b)	What is dispatching and what are the activities of a dispatcher	7M

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CODE: 16EC4035 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech II Semester Supplementary Examinations, November-2021

WIRELESS COMMUNICATIONS

(Electronics and Communication 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)	Compare any four mobile communication systems in terms of their base and mobile station characteristics.	(7M)
	b)	Explain the concept of the cordless telephone system.	(7M)
		(OR)	
2.	a)	Explain the basic building blocks and structure of the cellular communication system.	(8M)
	b)	Detail some of the significant milestones of the mobile radio communication.	(6M)

UNIT-II

3.	a)	What is meant by the spread spectrum? Explain in detail about the frequency-hopped spread spectrum.	(7M)
	b)	Explain the near-far problem in the CDMA with an illustration.	(7M)
		(OR)	
4.	a)	Compare and contrast FDMA, CDMA, and TDMA with necessary diagrams.	(7M)
	b)	Discuss briefly (1) Pure ALOHA (2) Slotted ALOHA (3) Packet reservation multiple access.	(7M)

UNIT-III

5.	a)	Explain the TDMA-based 2G standards in detail.	(7M)
	b)	Explain the 3G air-interface technologies.	(7M)
		(OR)	
6.	a)	With a neat sketch, explain the internet speeds of 2G, 2.5G, and 3G technologies.	(7M)
	b)	Explain the 4G evolution with its advantages, application, and limitations.	(7M)

UNIT-IV

7.		Illustrate and explain the architecture and services of IEEE 802.11.	(14M)
		(OR)	
8.	a)	Compare ad-hoc and infrastructure mode WLAN topologies.	(8M)
	b)	Write a short note on the wireless local loop.	(6M)

UNIT-V

9.	a)	What is the need for WiMAX?	(4M)
	b)	Explain the architecture of WiMAX with a neat illustration.	(10M)
		(OR)	
10		Explain Bluetooth protocol architecture in detail.	(14M)

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CODE: 16HS4005 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech II Semester Supplementary Examinations, November-2021

MANAGERIAL ECONOMICS AND MANAGEMENT SCIENCE

(Common to CSE & IT)

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)	Discuss the nature and scope of managerial economics in relation to business.	7 M
	b)	State and explain the law of demand. What are its exceptions?	7 M
		(OR)	
2.	a)	Define and explain price elasticity of demand.	7 M
	b)	Discuss briefly the various methods of demand forecasting.	7 M

UNIT-II

3.	a)	Define production function. Discuss in detail the different types of production functions.	7 M
	b)	Explain the various economies of scale and diseconomies of scale that occur to the firm when it expands its scale of production?	7 M
		(OR)	
4.	a)	What is the difference between explicit costs and implicit costs?	7 M
	b)	How is Break Even Analysis useful and important for a firm for making business decisions?	7 M

UNIT-III

5.	a)	Explain the various features of a perfectly competitive market.	7 M
	b)	Define market. Elaborate how differently markets are classified?	7 M
		(OR)	
6.	a)	What are causes for the emergence of Monopoly?	7 M
	b)	What is meant by monopolistic competition? How does a firm take its pricing and output decisions under it?	7 M

UNIT-IV

7.	a)	Define the word Management. Explain in detail about the functions of Management.	7 M
	b)	Elaborate the general principles of management developed by Henry Fayol.	7 M
		(OR)	
8.	a)	What are the major contributions of Hawthorne experiments to the present day organisations?	7 M
	b)	Explain the Hertzberg's two factor theory of motivation.	7 M

UNIT-V

9.	a)	What is marketing? Explain the different types of channels of distribution.	7 M
	b)	What type of marketing strategies are required in each stage of Product Life Cycle?	7 M
		(OR)	
10.	a)	Define Human Resource Management. Explain the basic functions of Human Resource Manager.	7 M
	b)	What is the difference between Job evaluation and Merit rating?	7 M

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CODE: 13EC4036 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech II Semester Supplementary Examinations, November-2021

CELLULAR AND MOBILE COMMUNICATIONS

(Electronics and Communication Engineering)

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

PART-A

ANSWER ALL QUESTIONS **[1 x 10 = 10 M]**

1. a) Write any two limitations of conventional mobile telephone system.
   b) Define Mean Opinion Score
   c) What is Reuse Distance in cellular communications?
   d) |How can you increase the capacity of cellular systems?
   e) What type of antennae is used in cellular systems?
   f) What do you mean by Make Before Break handoff?
   g) Write down two voice channel numbers from frequency management chart.
   h) Define fixed channel assignment.
   i) Define VLR function in GSM architecture.
   j) Abbreviate TDMA in cellular communications.

PART-B

Answer one question from each unit **[5x12=60M]**

UNIT-I

2. a) Explain Performance Criteria in cellular communications. **6 M**
   b) Demonstrate the limitations of conventional mobile systems. **6 M**

(OR)

3. a) Develop the C/I ratio for directional antenna in mobile radio environment. **6 M**
   b) Define Frequency reuse and explain how it increase the capacity of cellular systems **6 M**

UNIT-II

4. a) Explain Foliage loss in mobile Radio Environment. **6 M**
   b) Explain Mobile propagation over different surfaces **6 M**

(OR)

5. a) What is path loss curve? Explain how calculate path loss curve for an area. **6 M**
   b) Explain different fading models in mobile Radio Environment. **6 M**

UNIT-III

6. a) Explain Non-Omni directional antennas in mobile Radio Environment. **6 M**
   b) Explain directional antennas in mobile Radio Environment. **6 M**

(OR)

7. a) Define Dropped calls. Explain how estimate dropped calls in cellular communications **6 M**
   b) Explain Vehicle locating methods calls in cellular communications. **6 M**

AR13

CODE: 13EC4036 SET-2

UNIT-IV

8.	a)	Explain the frequency management of cellular communications.	**6 M**
	b)	Explain different channel assignment techniques in cellular communications.	**6 M**

(OR)

9.	a)	What are set up channels and control channels and voice channels in cellular communications and explain them.	**6 M**
	b)	Explain Channel assignments to cell sites and mobile units in cellular communications.	**6 M**

UNIT-V

10.	a)	Explain GSM registers in architecture in detail.	**6 M**
	b)	Explain ALOHA, and CSMA for wireless communications.	**6 M**

(OR)

11.	a)	Differentiate TDMA, CDMA, SDMA in cellular communications.	**6 M**
	b)	Explain GSM channels in cellular communications.	**6 M**

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