AR16

CODE: 16OE3041 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech II Semester Regular/Supplementary Examinations, October / November-2020

MANAGEMENT INFORMATION SYSTEMS (MIS)

(Open Elective – IV)

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)	Define Management? Elaborate different types of managerial functions?	7M
	b)	Discuss the various types of information.	7M
		(OR)	
2.		What is system? Explain different kinds of Systems .	14M

UNIT-II

3.		Differentiate between RAM and ROM. Why do computers have both. Also discuss the differentiate between primary and secondary storage.	14M
		(OR)	
4.		Explain the following a). Machine languages b). Assembly languages c). High level languages	14M

UNIT-III

5.		What is Communication Channel? Discuss about Communication Networks.	14M
		(OR)	
6.		Briefly discuss E-Mail, Video conferencing, Electronic data interchange and Electronic fund transfer.	14M

UNIT-IV

7.		Give various bases for classifying decisions. Which is the most widely used basis? Why.	14M
		(OR)	
8.		Discuss the relevance and role of MIS in various phases of decision making.	14M

UNIT-V

9.		'Nolan Stage model is a diagnostic and monitoring tool' Do you agree with the Statement? Justify.	14M
		(OR)	
10.		Develop a defence strategy for protecting your information system?	14M

AR16

CODE: 16OE3042 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech II Semester Regular/Supplementary Examinations, October / November-2020

NATURAL DISASTER MANAGEMENT

(Open Elective – IV)

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)	Examine various types of natural disasters in India and highlight their effects.	7 M
	b)	Describe different types of disasters and list their effects on community.	7 M
		(OR)	
2.	a)	Explain natural disaster and Infer various manmade disasters in detail.	7 M
	b)	Determine various types of natural disasters which are climatic in origin in the world and highlight their effects.	7 M

UNIT-II

3.	a)	Examine what kind of Emergency medical and essential public health services can be suggested for an earthquake affected area.	7 M
	b)	Compare and Contrast the Landslides and Floods.	7 M
		(OR)	
4.	a)	Explain the characters of a cyclone, describe in detail the conditions necessary for the development of a cyclone.	7 M
	b)	Explain flash flood, Choose one recent flash flood that affected large population of a region in India.	7 M

UNIT-III

5.	a)	Examine the role of media in disaster Management.	7 M
	b)	Interpret the main components of Social Rehabilitation Plan.	7 M
		(OR)	
6.	a)	What do mean by disaster preparedness and list the salient features of disaster preparedness.	7 M
	b)	Assess the policy of warehousing and stock piling as essential programs for disaster preparedness plan.	7 M

UNIT-IV

7.	a)	Describe the various measures that can be taken to mitigate the impacts of tropical cyclones in India.	7 M
	b)	Identify the significance and role of communication in disaster mitigation.	7 M
		(OR)	
8.	a)	Discuss the guiding principles of disaster mitigation and elaborate the problem areas in disaster mitigation.	7 M
	b)	Discuss the salient features of evolution and review works in disaster management.	7 M

UNIT-V

9.	a)	Identify what are the challenges involved in Quick Reconstruction.	7 M
	b)	Define damage assessment and determine the major types of damages.	7 M
		(OR)	
10.	a)	Evaluate the impact of disasters on human health.	7 M
	b)	Discuss the important guiding principles of rehabilitation and reconstruction.	7 M

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CODE: 16OE3043 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech II Semester Regular/Supplementary Examinations, October / November-2020

SPECIAL MACHINES

(Open Elective – IV)

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

Answer ONE Question from each Unit
Each Questions Carry 14 Marks
All parts of the Question must be answered at one place

UNIT-I

1.	a)	Explain the working of Switched reluctance motor?	10M
	b)	Explain the applications of Switched reluctance motor?	4M
		(OR)	
2.	a)	Explain power converter configurations for Switched reluctance motor?	9M
	b)	List out the merits and demerits of Switched reluctance motor?	5M

UNIT-II

3.	a)	Explain the operation of stepper motors?	7M
	b)	Explain the principle and operation of hybrid VR stepper motors?	7M
		(OR)	
4.	a)	Explain the construction and operation of a variable reluctance stepper motors?	7M
	b)	What is a step angle? Explain. Define stepping rate of a stepper motor?	7M

UNIT-III

5.	a)	Explain the construction of Permanent Magnet Brush less DC Motor?	10M
	b)	Explain merits and demerits of PMBLDC motor over DC motor?	4M
		(OR)	
6.	a)	Explain how PMBLDC working as a variable speed synchronous motor	9M
	b)	Mention the applications of PMBLDC motor?	5M

UNIT-IV

7.	a)	Explain the construction & working Principle of Linear Induction Motor	7M
	b)	What are advantages & disadvantages of Linear Induction Motor and also list out the application of Linear Induction Motor	7M
		(OR)	
8.	a)	Explain types of permanent magnet materials suitable for Permanent Magnet motors?	7M
	b)	Explain the operation of electrically commutated motor?	7M

UNIT-V

9.	a)	Explain clearly single sided linear induction motor for the application of traction drive	7M
	b)	Compare AC and DC Traction systems?	7M
		(OR)	
10.	a)	Explain the operation of Single phase AC series Motor?	7M
	b)	Explain types of ac motors are more suitable for traction application?	7M

AR16

CODE: 16OE3044 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech II Semester Regular/Supplementary Examinations, October / November-2020

INTRODUCTION TO AUTOMOBILE ENGINEERING

(Open Elective – IV)

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

Answer ONE Question from each Unit
Each Questions Carry 14 Marks
All parts of the Question must be answered at one place

UNIT-I

1.	a)	Compare the merits of front wheel drive vehicle with rear engine wheel drive vehicles.	4M
	b)	Explain splash lubrication system with neat sketch.	10M
		(OR)	
2.	a)	What are the properties of lubrication oil?	4M
	b)	Explain the working principle of four stroke SI Engine?	10M

UNIT-II

3.	a)	What are the basic components used in petrol engine fuel supply system?	4M
	b)	Explain the working principle of simple carburettor with a neat sketch.	10M
		(OR)	
4.	a)	What is the function of fuel injection system?	4M
	b)	Explain the working of A.C.Mechanical fuel pump.	10M

UNIT-III

5.	a)	What are the advantages of liquid cooling system?	4M
	b)	Describe with a neat sketch the working of air cooled system and what are its applications?	10M
		(OR)	
6.	a)	What are the functions of ignition systems in automobile?	4M
	b)	Give the detailed account of the battery ignition system. Illustrate your answer with neat sketch?	10M

UNIT-IV

7.	a)	Explain the working of starter switch.	7M
	b)	Explain Bendix drive starting mechanism with a neat sketch.	7M
		(OR)	
8.	a)	What is the function of clutch?	4M
	b)	Explain the construction and operation of a Constant mesh gear box with the help of a neat sketch.	10M

UNIT-V

9.	a)	What is the role of steering in automobile?	4M
	b)	Sketch and explain Davis steering gear mechanism.	10M
		(OR)	
10.	a)	What are the types of suspension springs used in automobile?	4M
	b)	Explain the working of hydraulic brake system.	10M

AR16

CODE: 16OE3045 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech II Semester Regular/Supplementary Examinations, October / November-2020

BASIC OF VLSI

(Open Elective – IV)

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 the fabrication steps of Bi-CMOS with neat diagrams.	[K2,CO1]	8M
	b)	Explain the working of enhancement mode MOS transistor.	[K2,CO1]	6M
		(OR)		
2.	a)	Explain the fabrication steps of NMOS with neat diagrams.	[K2,CO1]	8M
	b)	Compare CMOS and Bipolar technologies.	[K2,CO1]	6M

UNIT-II

3.	a)	Explain alternate forms of pull-up in CMOS.	[K2,CO2]	8M
	b)	Derive the relation between I_{ds} - V_{ds} in non saturation region.	[K2,CO2]	6M
		(OR)		
4.	a)	Derive the expression for pull-up to pull down ratio for an NMOS inverter driven by another NMOS inverter.	[K2,CO2]	8M
	b)	Explain the operation of CMOS inverter.	[K2,CO2]	6M

UNIT-III

5.	a)	Explain in detail about Lambda based design rules for transistors.	[K2,CO3]	7M
	b)	Draw stick diagram for CMOS inverter.	[K1,CO3]	7M
		(OR)		

6. a) Explain in detail about Lambda based design rules for contacts. [K2,CO3] 7M

   b) Sketch the layout diagram of NMOS inverter. [K2,CO3] 7M

UNIT-IV

7. List the limitations of scaling and Explain about limitations of scaling due to i) substrate doping ii) miniaturization iii) interconnects iv) sub threshold currents [K2,CO4] 14M

(OR)

8. List the scaling models and derive the scaling factors for device parameters i) Parasitic capacitance C_x, ii)gate delay T_d, iii) maximum operating frequency F_o, iv) power dissipation per gate P_g v) saturation current I_{dss} [K2,CO4] 14M

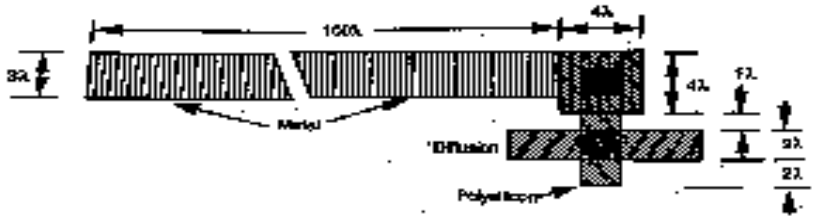
UNIT-V

9. a) Derive the expression for Rise time delay and fall time delay of CMOS inverter? [K2,CO5] 8M

   b) Explain the choice between the layers to route data and control signals. [K2,CO5] 6M

(OR)

10. a) Calculate area capacitances values associated with structures occupying more than one layer As shown in below figure. For 5 µm technology the relative capacitance values are
    Metal1 to substrate 0.075
    Polysilicon to substrate 0.1
    Gate to channel 1.0 [K3,CO5] 7M



   b) Define delay unit τ. Determine the NMOS and CMOS inverter pair delay. [K4,CO5] 7M

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CODE: 16OE3046 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech II Semester Regular/Supplementary Examinations, October / November-2020

SIMULATION AND MODELING

(Open Elective – IV)

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

Answer ONE Question from each Unit
Each Questions Carry 14 Marks
All parts of the Question must be answered at one place

UNIT-I

1.	a)	Compare the continuous and discrete systems	7M
	b)	Explain about Static and Dynamic physical models with suitable examples	7M
		(OR)	
2.	a)	Explain about Dynamic mathematical model	7M
	b)	Find the Advantages, Disadvantages and Pitfalls of Simulation	7M

UNIT-II

3.	a)	Contrast between Analytical and Simulation methods	5M
	b)	Give the detailed theory about Cobweb model	9M
		(OR)	
4.	a)	Extend the Monte-Carlo Method with examples	9M
	b)	Classify the types of system simulation	5M

UNIT-III

5.	a)	Construct exponential growth model for population system	7M
	b)	Develop System Dynamic Diagrams for a system model	7M
		(OR)	
6.	a)	Explain about the Discrete and continuous probability functions	9M
	b)	Construct the Logistic curves of the system model	5M

UNIT-IV

7.	a)	Demonstrate the Poisson Arrival Patterns with a suitable examples	9M
	b)	Elaborate the Service times and Queuing disciplines	5M
		(OR)	
8.	a)	Describe the Normal and exponential distribution	7M
	b)	Define the Queuing theory	7M

UNIT-V

9.	a)	Elaborate the simulation software GPSS	7M
	b)	Demonstrate the organization of SIMSCRIPT program	7M
		(OR)	
10.	a)	Define Action times, Succession of events	7M
	b)	What are the conditional transfers of SIMSCRIPT	7M

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CODE: 16OE3047 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech II Semester Regular/Supplementary Examinations, October / November-2020

SOFT COMPUTING

(Open Elective – IV)

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 soft computing? Explain the various types of soft computing techniques.	7 M
	b)	Distinguish between crisp set operations and fuzzy set operations with suitable examples.	7 M
		(OR)	
2.	a)	Explain different fuzzy set operations with suitable examples.	7 M
	b)	What is membership function in fuzzy logic? Explain different types of membership functions with examples.	7 M

UNIT-II

3.	a)	Write short notes on fuzzification and defuzzification to crisp sets.	8 M
	b)	Define fuzzy relations. Explain about fuzzy IF-THEN rules with example.	6 M
		(OR)	
4.	a)	What is inference in fuzzy logic? Explain the working of fuzzy inference system in detail.	7 M
	b)	Describe Mamdani fuzzy models.	7 M

UNIT-III

5.	a)	Deep describe Genetic Algorithm (G A) with neat diagram and give suitable example.	14 M
		(OR)	
6.	a)	What is simulated annealing (SA) algorithm? How does simulated annealing work?	8 M
	b)	Differences between GA and Traditional Algorithms.	6 M

UNIT-IV

7.	a)	What is supervised learning? Explain artificial neural networks (ANN).	7 M
	b)	Write short notes on Radial Basis Function (RBF) Networks and explain with neat diagram.	7 M
		(OR)	
8.	a)	Evaluate biological neuron and artificial neuron. Give examples.	7 M
	b)	Deep describe Multilayer Perceptron (MLP).	7 M

UNIT-V

9.	a)	What is unsupervised learning in neural networks? Explain Hebbian Learning.	7 M
	b)	Explain Kohonen Self-Organizing Map (SOM) networks.	7 M
		(OR)	
10.	a)	Write short notes on Competitive Learning Networks.	7 M
	b)	What is Principal Component Analysis (PCA)? Explain.	7 M

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AR13

CODE: 13CE3018 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, October / November-2020

TRANSPORTATION ENGINEERING – II
(Civil Engineering)

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

PART-A

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

1. a) What are the types of pavements?
   b) Mention the standard axle loads in India for single axle and tandem axle?
   c) What is an Expansion Joint in a rigid pavement?
   d) What are the types of pavements and its design codes?
   e) State the advantages of railways
   f) What do you mean by coning of wheels
   g) List various corrections required for designing the run way length.
   h) What is wind rose?
   i) Define the critical load positions.
   j) List out types of cracks occur on Flexible Pavements?

PART-B

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

UNIT-I

2. a) What are stresses acting on rigid pavements? Explain briefly with neat sketch 6M
   b) Explain the step wise design procedure of Tie bars? 6M

(OR)

3. a) Difference between flexible pavement and rigid pavement 6M
   b) Explain about the importance of Fatigue criteria in Flexible pavement Design? 6M

UNIT-II

4. a) Write the detailed construction procedure of cement concrete pavement. 6M
   b) Differentiate Surface Drainage and Sub-Surface Drainage system. 6M

(OR)

5.	a)	Explain briefly about failures of flexible pavements with neat sketch	6M
	b)	List out types of cracks occur on Flexible Pavements?	6M

UNIT-III

6.		Explain about benefits for highway users	12M

(OR)

7.		Write about the highway cost and highway finance in India	12M

UNIT-IV

8.		What is meant by a turn out? Enumerate components parts of a turnout with their functions and draw a neat sketch of right hand turnout.	12M

(OR)

9.	a)	Discuss merits and limitations of various rail joints	6M
	b)	Describe the Classification of Indian railways based on speed criteria, importance of route, traffic carried and maximum permissible speed?	6M

UNIT-V

10		The length of a runway at mean sea level, standard temperature and zero gradients is 1690m. The site has an elevation of 330m, with a reference temperature of 33.6ºC. The runway has to be constructed with an effective gradient of 0.25%. Determine the actual length of the runway at site.	12M

(OR)

11		The length of runway under standard conditions is 1900m the airport site has an elevation of 285m.its reference temperature is 36.94 ˚c .if the runway is to be constructed with an effective gradient of 0.40.percent, compute the corrected runway length	12M

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AR13

CODE: 13ME3025 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, October / November-2020

AUTOMOBILE ENGINEERING
(Mechanical Engineering)

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

PART-A

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

1. a) What is required for distribution of power from engine to all wheels in a 4- WD?
   b) What are the present emission standards in India?
   c) Define carburetion.
   d) What is injection advance?
   e) What is the function of the thermostat in a radiator?
   f) What is the purpose of the condenser in the ignition system?
   g) What type of pressure sensor is used in oil pressure gauge?
   h) What is the difference between normal clutch and dog clutch?
   i) What is a pitman – arm?
   j) Write the expression for steering according to Ackerman's principle.

PART-B

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

UNIT-I

2. a) What are the different systems in an automobile? Discuss them briefly — 6
   b) What is the purpose of lubrication? Explain pressure lubrication with a neat sketch. — 6

(OR)

3. a) Explain Indian driving cycle. — 6
   b) Discuss briefly about a 3–way catalytic converter with a neat sketch. — 6

UNIT-II

4. a) Explain simple carburettor with a neat sketch. 6
   b) What are the different types of fuel filters? Explain one in detail with a sketch. 6

(OR)

5. a) Explain CRDI system with a neat sketch. What are its advantages over conventional fuel injection system. 6
   b) Explain how a fuel pump works with possible sketches. 6

UNIT-III

6. a) Why cooling is required for an engine? Explain thermo siphon cooling system 6
   b) Explain radiator cooling system with a neat sketch. 6

(OR)

7. a) Explain electronic ignition system with a neat sketch. 6
   b) What is a spark plug ? Give its construction with a neat sketch 6

UNIT-IV

8. a) Discuss the dashboard signals very briefly. 6
   b) Explain Hotch-kiss drive with a neat sketch. 6

(OR)

9. a) Why differential is required for live axle than for a dead axle? Explain its construction. 6
   b) What is a clutch free pedal play? Discuss multi plate clutch and its advantages. 6

UNIT-V

10. Illustrate the following with possible sketches: 12
    i) Camber ii) Castor iii) Centre point steering
    iv) Steering gear ratio v)Steering axis inclination and
    vi) Slip angle

(OR)

11. a) Explain tandem cylinder with a neat sketch. 6
    b) What is mean by independent suspension system? Explain Mac Pherson strut suspension with a neat sketch. 6

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AR13

CODE: 13CS3017 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, October / November-2020

NETWORK SECURITY AND CRYPTOGRAPHY
(Computer Science & Engineering)

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

PART-A

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

1. a) Define Confidentiality.
   b) Why one time pad technique is considered as unbreakable?
   c) List the disadvantages of ECB block cipher mode.
   d) What are the characteristics of digital signature?
   e) List the limitations of SMTP.
   f) What is a Kerberos realm?
   g) List the key features of SET.
   h) How security associations are combined in IPSec Iterated tunnelling?
   i) Define base rate fallacy.
   j) Differentiate virus and worm.

PART-B

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

UNIT-I

2. a) List and briefly explain X.800 security mechanisms. 6M
   b) How attackers exploit buffer overflows and SQL queries? 6M

(OR)

3. a) Describe the encryption/decryption of playfair cipher. Construct a playfair matrix with the key ‘occurrence’ and encrypt the message ‘It was disclosed yesterday”. 8M
   b) Illustrate the brute-force attack of caesar cipher. 4M

UNIT-II

4. a) Describe the four basic encryption and decryption operations of AES. 6M
   b) With neat sketches explain CBC and Counter block cipher modes of operation. 6M

(OR)

5. a) Discuss the stepwise message digest generation using SHA-512 algorithm. 6M
   b) Differentiate direct and arbitrated digital signatures. 6M

UNIT-III

6. a) Draw the general format of X.509 V3 certificate and explain each element. 6M
   b) Discuss the environmental shortcomings and technical deficiencies of Kerberos Version 4. 6M

(OR)

7. a) Explain the transmission and reception of PGP messages. 6M
   b) Discuss various MIME content types. 6M

UNIT-IV

8. a) Differentiate IPSec transport and tunnel modes. What is the scope of AH authentication in transport and tunnel modes? 8M
   b) Describe the functionality of SSL alert protocol. 4M

(OR)

9. a) What is a dual signature and what is its purpose? 6M
   b) List and briefly define the parameters of SSL session state and connection. 6M

UNIT-V

10. a) List the fields of audit record. What are the metrics and approaches used in profile based intrusion detection? 6M
    b) Describe the nature of following malicious software's : 6M
       i) Trojan horse ii) Logic Bomb
       iii) Back door

(OR)

11. a) Differentiate application level and circuit level firewalls. 6M
    b) Illustrate how trusted systems help in Trojan horse defence. 6M

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