

AR16

CODE: 16OE3041

SET-2

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)**

III B.Tech II Semester Regular Examinations, April, 2019

MANAGEMENT INFORMATION SYSTEMS

(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) Describe the Dimensions of Information 7M
b) List out the advantages of database systems. 7M
- (OR)**
2. What is MIS? Illustrate the Nature, scope and importance of MIS. 14M

UNIT-II

3. a) What is normalisation? Discuss first normal form with example 7M
b) What are the disadvantages of FILES? 7M
- (OR)**
4. a) Discuss the features of relational DBMS 7M
b) Explain the following: 7M
(i) Machine language (ii) Assembly language (iii) High level language

UNIT-III

5. Discuss about each communication Hardware components. 14M
- (OR)**
6. What is a signal? Classify different types of signals with examples. 14M

UNIT-IV

7. Describe the relevance and role of MIS in various phases of decision making. 14M
- (OR)**
8. a) Illustrate Simon's Model of decision making. 7M
b) Compare e-commerce and e-business. 7M

UNIT-V

9. Briefly explain 4 stage model of IS planning 14M
- (OR)**
10. Outline the need of information system? 14M

AR16

CODE: 16OE3042 **SET-1**
ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Regular Examinations, April, 2019

NATURAL DISASTER MANAGEMENT **(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) Write the causes and effects of natural disasters 6M
b) Write the global view of the disaster and describe any two heavy disasters happened in the world 8M
- (OR)**
2. a) Describe the disaster management cycle and write the disaster profile of India 7M
b) Explain briefly about the types of disaster 7M

UNIT-II

3. a) Briefly describe the causes, effects and mitigation measures of the floods 7M
b) Briefly explain about the types of manmade disasters 7M
- (OR)**
4. a) Write any 5 general mitigation measures of natural disasters 6M
b) Briefly describe the causes, effects and mitigation measures of the earthquakes 8M

UNIT-III

5. a) Write any 5 points on advantages and importance of the disaster preparedness 6M
b) Describe the disaster preparedness plan for the people 8M
- (OR)**
6. Explain the concept and nature of the disaster preparedness 14M

UNIT-IV

7. a) Explain the role of the team coordination in disaster mitigation management 7M
b) Give any five disaster mitigation strategies 7M
- (OR)**
8. a) Briefly describe the emerging trends in disaster mitigation. 7M
b) Briefly explain the disaster mitigation management 7M

UNIT-V

9. a) Explain long term counter disaster planning 5M
b) Explain the role of different agencies in recovery management 9M
- (OR)**
10. a) Define reconstruction and rehabilitation 5M
b) Briefly explain the recovery measure after the post disaster 9M

AR16

CODE: 16OE3043

SET-1

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)**

III B.Tech II Semester Regular Examinations, April, 2019

SPECIAL MACHINES

(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 different power converter configurations for switched reluctance motor? 7M
b) What are the effects of saturation in SRM? 7M
- (OR)**
2. What are the advantages and disadvantages of switched reluctance motors and mention the applications of switched reluctance motors? 14M

UNIT-II

3. a) Define the terms pull-in and pull-out torque of a stepper motor? 7M
b) Discuss different modes of excitation of stepper motors? 7M
- (OR)**
4. a) Describe hybrid stepper motor? 7M
b) List out areas of applications and suitability of stepper motors? 7M

UNIT-III

5. a) Give the advantages and applications of BLDC motors? 7M
b) Explain the construction details of BLDC motor? 7M
- (OR)**
6. What is a BLDC motor? Draw the back EMF waveforms and explain the switching logic for a three phase BLDC motors? 14M

UNIT-IV

7. a) Explain the principle of operation of a linear induction motor? 7M
b) What are the applications of Linear Induction Motor? 7M
- (OR)**
8. a) What is a B-H curve? Explain equivalent circuit of a permanent magnet? 7M
b) Why permanent magnet machines have high torque/weight ratio explain? 7M

UNIT-V

9. a) Compare AC and DC traction systems and what are merits and demerits 7M
b) Explain clearly single sided linear induction motor for the application of traction drive? 7M
- (OR)**
10. a) What is the selection criterion of motors for electric traction application? Explain. 7M
b) What are the merits and demerits of AC traction motors compare to DC traction motors? 7M

AR16

CODE: 16OE3044

SET-2

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)**

III B.Tech II Semester Regular Examinations, April, 2019

**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. Label various components of four wheel automobile on a neat diagram and explain about any five components. 14 M

(OR)

2. a) Explain pressure lubrication system in an automobile with a neat diagram. 6 M
b) Explain with neat diagrams any two types of oil filters. 8 M

UNIT-II

3. a) Explain the working of Electrical pump used in fuel supply system of SI engines with a neat diagram. 10 M
b) Label five components of a simple carburettor with a neat diagram 4 M

(OR)

4. a) Explain common rail fuel injection system in diesel engines with a neat diagram 7 M
b) Explain individual pump fuel injection system with a neat diagram 7 M

UNIT-III

5. a) Explain pump circulation system of water cooling in an automobile 10 M
b) List any four advantages of water cooling system over air cooling 4 M

(OR)

6. a) Explain magneto coil ignition system with a neat diagram. 10 M
b) List any four disadvantages of insufficient cooling 4 M

UNIT-IV

7. Explain the working of any five components of charging system in an automobile 14 M

(OR)

8. a) Explain constant mesh type gearbox with a neat diagram 10 M
b) Explain the working of a clutch in an automobile 4 M

UNIT-V

9. a) Explain Davis steering mechanism with a neat diagram 10 M
b) List any three objectives of suspension system 4 M

(OR)

10. Explain the construction and working of Mechanical Braking System with a neat diagram 14 M

AR16

CODE: 16OE3045

SET-1

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)**

III B.Tech II Semester Regular Examinations, April, 2019

BASICS OF VLSI

(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 MOS transistor operation with the help of neat sketches in the Depletion mode. 7M
b) Compare between CMOS and Bipolar technologies. 7M
(OR)
2. a) Explain the fabrication of CMOS transistor with the help of neat sketches in N-Well process. 7M
b) Discuss the steps involved in BiCMOS technology. 7M

UNIT-II

3. a) Derive the expression for I_{DS} in non-saturated region 7M
b) Obtain the ratio between Z_{PU} and Z_{PD} for an nMOS inverter driven by another nMOS inverter 7M
(OR)
4. a) Define figure of merit. Derive the expression for it? 7M
b) Discuss latch-up problem in CMOS circuits. 7M

UNIT-III

5. a) Explain steps in VLSI design flow. 7M
b) Design stick diagram for two input nMOS NAND and NOR gates 7M
(OR)
6. a) Explain lambda based design rules. 7M
b) Design a layout diagram for CMOS inverter. 7M

UNIT-IV

7. a) Derive the any five scaling factors for device parameters 7M
b) Explain scaling of MOS circuits. Give merits and demerits of scaling. 7M
(OR)
8. a) Give limitations of scaling? 7M
b) Derive the scaling factors for A_g , C_g , R_{on} , T_d , E_g device parameters 7M

UNIT-V

9. a) What is inverter delay? How delay is calculated for multiple stages 7M
b) Discuss briefly about wiring capacitances. 7M
(OR)
10. a) Explain the problem of driving of large capacitive loads? How such loads can be driven. 7M
b) Derive the expression for rise time and fall time in CMOS transistor? 7M

AR16

CODE: 16OE3046

SET-2

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)**

III B.Tech II Semester Regular Examinations, April, 2019

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) Find the Advantages, Disadvantages and Pitfalls of Simulation 7M
b) Explain about Static and Dynamic physical models with suitable examples 7M
- (OR)**
2. a) Illustrate the model of simulation study 7M
b) Elaborate to write the Nature of Simulation of a system 7M

UNIT-II

3. a) Contrast between Analytical and Simulation methods 5M
b) Extend the Monte-Carlo Method with advantages and Disadvantages 9M
- (OR)**
4. a) Give the detailed theory about Cobweb model 9M
b) Explain about the Distributed Lag Model of a system 5M

UNIT-III

5. a) Construct exponential Decay model for population system 7M
b) Develop System Dynamic Diagrams for a system model 7M
- (OR)**
6. a) Explain about the Discrete probability functions with neat tables 7M
b) Construct the Logistic curves of the system model 7M

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 10M
b) Define the Queuing theory 4M

UNIT-V

9. a) Explain names, labels and SIMSCRIPT statements 7M
b) Give the details of Estimation methods of SIMSCRIPT 7M
- (OR)**
10. a) Elaborate the simulation software GPSS 7M
b) Demonstrate the organization of SIMSCRIPT program 7M

AR16

CODE: 16OE3047

SET-2

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)**

III B.Tech II Semester Regular Examinations, April, 2019

SOFT COMPUTING

(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) Outline the differences between hard computing and soft computing. 7M
b) Name and explain the different fuzzy membership functions with a diagram. 7M
- (OR)**
2. a) Explain the framework of a fuzzy expert system with a diagram. 7M
b) Explain the various types of soft computing techniques. 7M

UNIT-II

3. a) What is fuzzy relation? Explain with suitable example. 7M
b) Explain crisp relations briefly. 7M
- (OR)**
4. a) Present a framework of a fuzzy inference system and explain the same. 7M
b) Write short notes on fuzzification and defuzzification to crisp sets. 7M

UNIT-III

5. a) Explain fitness functions in respect of evolutionary computing. 7M
b) What is genetic algorithm? Explain briefly. 7M
- (OR)**
6. a) Explain genetic algorithm based back propagation network. 7M
b) Draw the architecture of Genetic algorithms. Explain in detail. 7M

UNIT-IV

7. a) Appraise with an example supervised and unsupervised learning neural networks. 7M
b) Explain neural network architecture. 7M
- (OR)**
8. a) Give a detailed description of various learning techniques. 7M
b) Explain Radial Basis Function Networks. 7M

UNIT-V

9. a) What is Artificial Neural Networks. Explain briefly. 7M
b) Explain Back propagation Multilayer perceptron. 7M
- (OR)**
10. a) Explain Kohonen Self organizing Networks. 7M
b) Distinguish Hebbian Learning and Self-Organizing Networks Learning. 7M

AR16

CODE: 16OE3048

SET-2

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)**

III B.Tech II Semester Regular Examinations, April, 2019

SENSORS AND TRANSDUCERS

(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) Draw the functional block diagram of a measurement system and discuss each block? 8M
b) Define following performance characteristics 6M
 - i. Speed of response
 - ii. Lag
 - iii. Dynamic error
- (OR)
2. a) classify different type of errors and elimination methods 8M
b) Define performance characteristics 6M
 - I Sensitivity
 - ii. Linearity
 - iii Resolution

UNIT-II

3. a) Write the principle and working of seismic type accelerometer 7M
b) Explain principle and operation of capacitive displacement transducer. 7M
- (OR)
4. a) Explain principle and operation of inductive displacement transducer 7M
b) Explain principle and operation of vibration measurement. 7M

UNIT-III

5. a) Explain principle and operation of strain gauge load cell for tensional and compression. 8M
b) Explain principle and operation of optical torsion meter for torque measurement? 6M
- (OR)
6. a) Explain different type of strain gauges? 6M
b) Explain principle and operation of stroboscope for speed measurement? 8M

UNIT-IV

7. a) Write the procedure to measure unknown pressure using Thermal conductivity Gauge? 7M
b) Explain principle and operation of RTD's with neat sketch? 7M
- (OR)
8. a) How to measure the level measurement by using inductive transducer? 7M
b) Draw and explain the expansion type bourdon tube pressure gauges? 7M

UNIT-V

9. a) Explain the measurement of flow rate using hot wire anemometer? 7M
b) Explain the measurement of humidity using Sling Psychomotor? 7M
- (OR)
10. a) Draw and explain Dew point meter for Measurement of moisture? 7M
b) Explain the measurement of flow rate using magnetic flow meter? 7M

AR13

CODE: 13CE3018

SET-2

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)**

III B.Tech II Semester Supplementary Examinations, April-2019

TRANSPORTATION ENGINEERING – II

(Civil Engineering)

Time: 3 Hours

Max Marks: 70

PART-A

ANSWER ALL QUESTIONS

[1 x 10 = 10 M]

1. a) Name the component layers in a flexible pavement?
- b) How do you define Durability of road aggregates?
- c) Define Modulus of Subgrade reaction.
- d) List out the types of joints provided in Rigid Pavement?
- e) Explain the term cant deficiency
- f) Write the importance of highway drainage.
- g) Write two points the highway user benefits.
- h) Write the uses of dowel bars and tie bar.
- i) The application of _____ diagram is used to find the orientation of runway to get the desired wind coverage.
- j) An aircraft is flying in an atmosphere of 30°C with a speed of 1260 km ph. Its speed is known as?

PART-B

Answer one question from each unit

[5x12=60M]

UNIT-I

2. a) What are the various types of joints in cement concrete roads? Explain with neat sketches. 6M
 - b) Explain the CBR method for designing of flexible pavement with neat sketch 6M
- (OR)**
3. a) Write about different types of Failures in rigid pavements. 6M
 - b) Explain about the failure criteria's considered in the design of flexible pavements as per IRC. 6M

4. a) What is highway drainage? Explain about the importance of highway drainage and its types? 6M
b) Explain the detailed construction procedure of bituminous pavement. 6M

(OR)

5. a) Explain the step wise design procedure of Dowel bars? 6M
b) List out the causes for Rutting and Alligator Cracking? 6M

UNIT-III

6. Discuss about the methods in economic analysis for highways 12M

(OR)

7. Explain about the methods of highway financing? 12M

UNIT-IV

8. a) What is a gradient? What are they provided on railway track? How are they classified? 6M

- b) Describe the different types of marshalling yards with neat sketches. 6M

(OR)

9. a) Discuss different types of rail joints with help of neat sketches and give their merits and limitations. 6M

- b) Discuss merits and limitations of railways. 6M

UNIT-V

- 10 The length of runway under standard conditions is 1620m. The airport site has an elevation of 270m. Its reference temperature is 32.90°C . If the runway is to be constructed with an effective gradient of 0.20%. Determine the corrected runway length. 12M

(OR)

- 11 The length of a runway at mean sea level, standard temperature and zero gradients is 1600m. The site has an elevation of 320m, with a reference temperature of 33.6°C . The runway has to be constructed with an effective gradient of 0.25%. Determine the actual length of the runway at site. 12M

Time: 3 Hours**Max Marks: 70****PART-A****ANSWER ALL QUESTIONS****[1 x 10 = 10 M]**

1. a) What are the advantages of four wheel drive
- b) Name the automotive parts to be lubricated
- c) State the functions of air filter
- d) The term 'CRDI' of an automobile stands for?
- e) Name the liquid coolants used in modern automotive engines.
- f) What does the condenser do in the ignition system?
- g) Explain the working principle of an Alternator.
- h) Name the type of gear teeth used for constant mesh gear box.
- i) Name the important angles of steering geometry.
- j) Which type of independent suspension system is mostly used in front drive vehicles.

PART-B**Answer one question from each unit****[5x12=60M]****UNIT-I**

2. a) Classify automotive engines on the basis of valve arrangement 6m
- b) With a neat sketch, describe the power transmission system of a front engine rear wheel drive. 6m

(OR)

3. a) Outline the various components of automobile 6m
- b) What do you mean by front engine front wheel drive? Explain with the help of neat diagram. 6m

UNIT-II

4. a) With a neat sketch, explain the working principle of a mechanical fuel pump. 6m
- b) Discuss the functional requirements of Fuel injection system for CI engines. 6m

1 of 2**(OR)**

5. a) Describe the working principle of an electrical diaphragm fuel pump. 6m
b) Describe the main features of an electronic fuel injection system. 6m

UNIT-III

6. a) Sketch the forced water circulation system used in automobiles and explain. 6m
b) Briefly explain the working of Battery ignition system with the help of simplified sketch. 6m

(OR)

7. a) What are the different cooling systems used in automobiles? Discuss water cooling system in diesel engine in detail. 6m
b) Explain the following with reference to ignition system (i) Distributor (ii) Spark plug (iii) Contact breaker 6m

UNIT-IV

8. a) Explain the working of charging circuit. 6m
b) Enumerate the functions of transmission system and discuss about the working of a sliding mesh gear box. 6m

(OR)

9. a) Explain the working of Bendix drive mechanism with a neat sketch. 6m
b) With the help of a neat sketch explain layout of an automobile power transmission system. Briefly mention function of each component. 6m

UNIT-V

10. a) With a simple sketch, explain the working principle of automotive steering system. 6m
b) What are the components of a vehicle suspension system? Briefly explain the role of each component. 6m

(OR)

11. a) Explain the following (i) Caster angle (ii) Camber angle (iii) King pin angle 6m
b) With a neat sketch describe the working of hydraulic brake system. 6m

AR13

CODE: 13CS3024

SET-1

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)

III B.Tech II Semester Supplementary Examinations, April-2019

SOFTWARE PROJECT MANAGEMENT
(Computer Science Engineering)

Time: 3 Hours

Max Marks: 70

PART-A

ANSWER ALL QUESTIONS

[1 x 10 = 10 M]

1. a) What are the basic steps to build a program?
b) Define Size of Software Economics?
c) What is a Macro process?
d) List out the life cycle phases.
e) Define Architecture?
f) List the Artifact Sets.
g) Define SEPA?
h) What is the purpose of software management team?
i) List the Management Indicators.
j) Define MTBF?

PART-B

Answer one question from each unit

[5x12=60M]

UNIT-I

2. a) Explain about the Waterfall model in practice **6M**
b) Discuss the conventional software management performance. **6M**

(OR)

3. a) Explain in detail about the three generations of software economics. **6M**
b) Explain briefly about Pragmatic software cost estimation **6M**

UNIT-II

4. a) List out and Explain the important trends in improving software economics. **8M**
b) What are primary objectives and essential activities of elaboration phase? **4M**

AR13

CODE: 13CS3024

SET-1

(OR)

5. State and explain the principles of conventional Software Engineering? **12M**

UNIT-III

6. a) Give an overview of the artifact sets that make the development of a complete software system manageable. **8M**
b) Write about results of major milestones in a modern process. **4M**

(OR)

7. What is the sequence of individual iteration's workflow? **12M**

UNIT-IV

8. Discuss the conventional work breakdown structures? **12M**
(OR)
9. a) Explain in detail the responsibilities of the four component teams in a default line-of-business organization. **8M**
b) What are the activities of software management team? **4M**

UNIT-V

10. a) Explain briefly about management indicators **8M**
b) Discuss with few points about Pragmatic Software Metrics **4M**

(OR)

11. Describe Briefly about Process Discriminants **12M**

AR13

SUB CODE: 13IT3006

SET-1

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)

III B.Tech II Semester Supplementary Examinations, April-2019

IMAGE PROCESSING

(Elective -1)

(Information Technology)

Time: 3 Hours

Max Marks: 70

PART-A

ANSWER ALL QUESTIONS

[1 x 10 = 10 M]

1. a. Distinguish between Binary Image and gray scale image.
- b. Explain the types of neighborhoods.
- c. What is Gray Level Slicing?
- d. Give the filter response function which performs smoothing in frequency domain.
- e. Explain the relationship between compression ratio and relative data redundancy.
- f. What is Bit plane coding?
- g. What are approximate and detail coefficients of wavelet transform?
- h. List the Sobel masks for Edge Detection
- i. What is mean by Edge Linking?
- j. What is Image Sensing?

. PART-B

Answer one question from each unit

[5x12=60M]

UNIT-I

2. a) Explain the fundamental steps of Digital Image Processing. [6M]
- b) Explain sampling & quantization? [6M]
- (OR)
3. a) Discuss different types of digital images? [6M]
- b) Discuss different color models. [6M]

UNIT-II

4. Explain Histogram Equalization with derivation & example. [12M]

(OR)

5. a) Explain Smoothing Spatial filters. [6M]
b) Discuss any two Gray level Transformations. [6M]

UNIT-III

6. a) What is Redundancy? Explain different types of Redundancy? [6M]
b) Write short notes on Variable Length Coding? [6M]

(OR)

7. Discuss in detail about Image compression model and all its stages. [12M]

UNIT-IV

8. a) Discuss Image morphology using Logical operation. [6M]
b) Discuss about
i) Dilation & Erosion [3M]
ii) Opening & Closing [3M]

(OR)

9. Explain about
i) Boundary Extraction [4M]
ii) Region Filling [4M]
iii) Convex Hull [4M]

UNIT-V

10. Discuss
i) Point Detection [4M]
ii) Line Detection [4M]
iii) Edge Detection [4M]

(OR)

11. a) Explain Basic Adaptive Thresholding. [6M]
b) Discuss linking & boundary detection. [6M]