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MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech III Year II Semester (R14) Supplementary End Semester Examinations – DEC 2018

HUMAN RESOURCE DEVELOPMENT

(Open Elective)

Time: 3Hrs

Max Marks: 60

Attempt all the questions. All parts of the question must be answered in one place only.

All parts of Q.no 1 are compulsory. In Q.no 2 to 6 answer either A or B only

- | | | |
|--|--|----|
| Q.1 | i. Define human resource development? | 1M |
| | ii. Explain strategic implementation? | 1M |
| | iii. Define job enlargement? | 1M |
| | iv. Define training development? | 1M |
| | v. Define survey questionnaires? | 1M |
| | vi. Explain 360 degree performance appraisal method? | 1M |
| | vii. Define job placement? | 1M |
| | viii. Define methods of recruitment? | 1M |
| | ix. Explain safety environment? | 1M |
| | x. Define trade union? | 1M |
| Q.2(A) Explain the functions of HRM in detail? 10M | | |
| OR | | |
| Q.2(B) Brief the evolution of HRM in India? 10M | | |
| Q.3(A) Explain the nature and importance of HR planning in detail? 10M | | |
| OR | | |
| Q.3(B) Explain the concept of succession planning in detail? 10M | | |
| Q.4(A) Describe the process the recruitment in multinational companies? 10M | | |
| OR | | |
| Q.4(B) Why performance appraisal is important and errors in implementing performance management system? 10M | | |
| Q.5(A) Describe the types of identifying the training needs in an organization? 10M | | |
| OR | | |
| Q.5(B) Explain the role of compensation in organization development? 10M | | |
| Q.6(A) Explain the importance of trade union and its role on economic development? 10M | | |
| OR | | |
| Q.6(B) What are the role of HRM in promoting ethics and good practices? 10M | | |

*** END***

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech III Year II Semester (R14) Supplementary End Semester Examinations – DEC 2018**ENGINEERING OPTIMIZATION**

(Open Elective)

Time: 3Hrs

Max Marks: 60

Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 2 to 6 answer either A or B only

- Q.1
- i. Write the characteristics of Standard form of an LPP? 1M
 - ii. Define Optimum feasible solution? 1M
 - iii. Write need for duality? 1M
 - iv. What is degeneracy in Transportation problem? 1M
 - v. What is Assignment problem? 1M
 - vi. State necessary condition for multi variable optimization? 1M
 - vii. What are the Kuhn-Tucker conditions for maximization problem? 1M
 - viii. Define free-float of a network analysis? 1M
 - ix. What is Critical path? 1M
 - x. Define traffic intensity? 1M

-
- Q.2(A) A company manufactures two types of cloth, using three different colours of wool. 10M
One-yard length of type A cloth requires 4 oz of red wool, 5 oz of green wool and 3 oz of yellow wool. One-yard length of type B cloth requires 5 oz of red wool, 2 oz of green wool and 8 oz of yellow wool. The wool available for manufacturer is 1000oz of red wool, 1000 oz of green wool and 1200 oz of yellow wool. The manufacturer can make a profit of Rs. 50 on One-yard length of type A cloth and Rs. 30 One-yard length of type B cloth. Find the best combination of the quantities of type A and type B cloth which gives his maximum profit by solving the LPP by graphical method.

OR

- Q.2(B) Solve the L.P.P. by Simplex method: $Min.Z = x_1 - 3x_2 + 3x_3$ 10M
Subject to $3x_1 - x_2 + 2x_3 \leq 7$, $2x_1 + 4x_2 \geq -12$, $-4x_1 + 3x_2 + 8x_3 \leq 10$, $x_1, x_2 \geq 0$

-
- Q.3(A) Using duality solve the LPP, $Max.Z = 2x_1 + x_2$ 10M
Subject to $x_1 + 2x_2 \leq 10$, $x_1 + x_2 \leq 6$, $x_1 - x_2 \leq 2$, $x_1 - 2x_2 \leq 1$, $x_1, x_2 \geq 0$

OR

- Q.3(B) Using dual simplex method solve the LPP, $Max.Z = -2x_1 - x_2$ 10M
Subject to $3x_1 + x_2 \geq 3$, $4x_1 + 3x_2 \geq 6$, $x_1 + 2x_2 \geq 3$; $x_1, x_2 \geq 0$.

-
- Q.4(A) Solve the following Transportation problem: 10M

	D1	D2	D3	D4	Availability
P1	7	4	3	5	235
P2	6	8	7	4	280
P3	5	6	9	10	110
Requirement	125	160	110	230	

OR

- Q.4(B) Five jobs are to be processed I, II, III, IV, V and five machines A, B, C, D, E are available. 10M
Any machine can process any job with resulting profit (in rupees) as follows:

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>
<i>I</i>	32	38	40	28	40
<i>II</i>	40	24	28	21	36
<i>III</i>	41	27	33	30	37
<i>IV</i>	22	38	41	36	36
<i>V</i>	29	33	40	35	39

What is the maximum profit that may be expected in an optimum assignment is made?

- Q.5(A) Find the extreme points of the function $f(x_1, x_2) = x_1^3 + x_2^3 + 2x_1^2 + 4x_2^2 + 6$ 10M

OR

- Q.5(B) Minimize $f(x_1, x_2) = x_1 - x_2 + 2x_1^2 + 2x_1x_2 + x_2^2$ starting from the point $\{0, 0\}$ using the Fletcher-Reeves method. 10M

- Q.6(A) A small project is composed of seven activities whose time estimates in weeks are given below: 10M

Activity	1-2	1-3	1-4	2-5	3-5	4-6	5-6
Optimistic time	1	1	2	1	2	2	3
Most likely time	1	4	2	1	5	5	6
Pessimistic time	7	7	8	1	14	8	15

Find the critical path. What is the probability that the project will be completed at least four weeks later than expected?

OR

- Q.6(B) i. Explain Queuing System. 4M

ii. A T.V. repairman finds that the time spent on his jobs has an exponential distribution with mean 30 minutes. If he repairs sets in order in which they came in, and if the arrival of sets is approximately Poisson with an average of 10 per 8-hour day, what is repairman's expected idle time each day? How many jobs are ahead of the average set just brought in? 6M

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MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech III Year II Semester (R14) Supplementary End Semester Examinations – DEC 2018

OPTICAL PHYSICS AND APPLICATIONS

(Open Elective)

Time: 3Hrs

Max Marks: 60

Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 2 to 6 answer either A or B only

- | | | | | | | | |
|---|---|--------|--|-----------|---|--------|--|
| Q.1 | <ul style="list-style-type: none"> i. Express velocity of Electromagnetic waves in terms of permeability and permittivity. 1M ii. What is the focal length of a thin lens with radius of curvatures -25 cm and +25 cm and refractive index 1.5? 1M iii. What is Fermat's principle? 1M iv. Define a unit plane. 1M v. Differentiate coma and astigmatism. 1M vi. What is the magnification of a simple microscope? 1M vii. What is the relationship between the path difference and phase difference? 1M viii. What is grating element? 1M ix. What is acceptance angle of an optical fiber? 1M x. What is meant by attenuation? 1M | | | | | | |
| <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%; vertical-align: top;">Q.2(A)</td> <td style="width: 80%; vertical-align: top;"> <ul style="list-style-type: none"> i. Determine the transmission matrix for the light ray through a homogeneous medium 5M ii. An object is placed at a distance 2.5 cm in front of a glass sphere of radius 10 cm and refractive index of 1.5. Write the system matrix for the lens. 5M <p style="text-align: center;">OR</p> </td> </tr> <tr> <td style="vertical-align: top;">Q.2(B)</td> <td style="vertical-align: top;"> <ul style="list-style-type: none"> i. What are nodal planes? 2M ii. Derive relations for distances of nodal planes from the thick lens refracting surfaces in Gaussian constants 8M </td> </tr> </table> | | Q.2(A) | <ul style="list-style-type: none"> i. Determine the transmission matrix for the light ray through a homogeneous medium 5M ii. An object is placed at a distance 2.5 cm in front of a glass sphere of radius 10 cm and refractive index of 1.5. Write the system matrix for the lens. 5M <p style="text-align: center;">OR</p> | Q.2(B) | <ul style="list-style-type: none"> i. What are nodal planes? 2M ii. Derive relations for distances of nodal planes from the thick lens refracting surfaces in Gaussian constants 8M | | |
| Q.2(A) | <ul style="list-style-type: none"> i. Determine the transmission matrix for the light ray through a homogeneous medium 5M ii. An object is placed at a distance 2.5 cm in front of a glass sphere of radius 10 cm and refractive index of 1.5. Write the system matrix for the lens. 5M <p style="text-align: center;">OR</p> | | | | | | |
| Q.2(B) | <ul style="list-style-type: none"> i. What are nodal planes? 2M ii. Derive relations for distances of nodal planes from the thick lens refracting surfaces in Gaussian constants 8M | | | | | | |
| <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%; vertical-align: top;">Q.3(A)</td> <td style="width: 80%; vertical-align: top;"> <ul style="list-style-type: none"> i. What are Chromatic aberrations? 4M ii. Derive the condition for Achromatic doublet to minimize the chromatic aberrations. 6M <p style="text-align: center;">OR</p> </td> </tr> <tr> <td style="vertical-align: top;">Q.3(B)</td> <td style="vertical-align: top;"> <ul style="list-style-type: none"> i. Differentiate microscope and telescope 2M ii Explain coma with neat diagram and Abbelu Sine condition for minimizing coma. 8M </td> </tr> </table> | | Q.3(A) | <ul style="list-style-type: none"> i. What are Chromatic aberrations? 4M ii. Derive the condition for Achromatic doublet to minimize the chromatic aberrations. 6M <p style="text-align: center;">OR</p> | Q.3(B) | <ul style="list-style-type: none"> i. Differentiate microscope and telescope 2M ii Explain coma with neat diagram and Abbelu Sine condition for minimizing coma. 8M | | |
| Q.3(A) | <ul style="list-style-type: none"> i. What are Chromatic aberrations? 4M ii. Derive the condition for Achromatic doublet to minimize the chromatic aberrations. 6M <p style="text-align: center;">OR</p> | | | | | | |
| Q.3(B) | <ul style="list-style-type: none"> i. Differentiate microscope and telescope 2M ii Explain coma with neat diagram and Abbelu Sine condition for minimizing coma. 8M | | | | | | |
| <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%; vertical-align: top;">Q.4(A)</td> <td style="width: 80%; vertical-align: top;"> Explain Young's double slit experiment with neat sketch and derive an expression for resultant Intensity. 10M </td> </tr> <tr> <td colspan="2" style="text-align: center; padding: 5px 0;">OR</td> </tr> <tr> <td style="vertical-align: top;">Q.4(B)</td> <td style="vertical-align: top;"> Derive the expression for path difference and the conditions for bright and dark fringes in the case of interference in thin films. 10M </td> </tr> </table> | | Q.4(A) | Explain Young's double slit experiment with neat sketch and derive an expression for resultant Intensity. 10M | OR | | Q.4(B) | Derive the expression for path difference and the conditions for bright and dark fringes in the case of interference in thin films. 10M |
| Q.4(A) | Explain Young's double slit experiment with neat sketch and derive an expression for resultant Intensity. 10M | | | | | | |
| OR | | | | | | | |
| Q.4(B) | Derive the expression for path difference and the conditions for bright and dark fringes in the case of interference in thin films. 10M | | | | | | |

Q.5(A) Describe Fraunhofer diffraction due to double slit with a suitable diagram. And derive the expression for its resultant intensity and discuss corresponding terms. 10M

OR

Q.5(B) What is Malus law? And explain the phenomenon of polarization by refraction through transparent surfaces. 10M

Q.6(A) i. Explain the phenomenon of Total internal reflection 3M
ii. Describe construction and the working principle of optical fibre. 7M

OR

Q.6(B) i. Explain fibre optic communication system with a neat block diagram 7M
ii. Calculate the acceptance angle of a given optical fibre whose refractive indices of the core is 1.563 and of cladding is 1.498. 3M

*** END***

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)

B.Tech III Year II Semester (R14) Supplementary End Semester Examinations –DEC 2018
GREEN CHEMISTRY AND CATALYSIS FOR SUSTAINABLE ENVIRONMENT
(Open Elective)

Time: 3Hrs

Max Marks: 60

Attempt all the questions. All parts of the question must be answered in one place only.
All parts of S.No 1 are compulsory. In S.No 2 to 6 answer either A or B only

- | | | |
|--|--|--|
| Q.1 | i. State Markovnikov's rule for addition reaction.
ii. Name two methods for polymer recycling.
iii. Does dealumination process collapse the zeolite framework? Justify your answer.
iv. Give an example for water stable and recyclable Lewis acid.
v. Mention two applications of supercritical fluids.
vi. What are the mandatory conditions required for the solvent free reactions?
vii. Which process yields ethanol as major product from biomass?
viii. Write two important applications of power ultrasound.
ix. Differentiate solvothermal and hydrothermal reactions.
x. List out consumer products where nanomaterials are used? | 1M
1M
1M
1M
1M
1M
1M
1M
1M
1M |
| <hr/> | | |
| Q.2(A) | What are the twelve principles of green chemistry? | 10M |
| <p style="text-align: center;">OR</p> | | |
| Q.2(B) | Discuss in brief on greenness of Leblanc and Solvay process for the production of sodium carbonate. | 10M |
| <hr/> | | |
| Q.3(A) | Elaborate on sequential steps involved in catalytic reaction to improve overall reaction efficiency. | 10M |
| <p style="text-align: center;">OR</p> | | |
| Q.3(B) | Explain the hydrogenation of olefins using Wilkinson's catalyst with mechanism. | 10M |
| <hr/> | | |
| Q.4(A) | Describe solvent free traditional Baker-Venkataraman rearrangement with its mechanism and advantages. | 10M |
| <p style="text-align: center;">OR</p> | | |
| Q.4(B) | What are ionic liquids? Give two examples of ionic liquids. Write the applications of ionic liquids as solvent and as catalyst. | 10M |
| <hr/> | | |
| Q.5(A) | Explain the steps involved in the production of
(a) Polyhydroxyalkanoates (PHAs) and
(b) Adipic acid using glucose as renewable resource. | 10M |
| <p style="text-align: center;">OR</p> | | |
| Q.5(B) | Discuss the main advantages and challenges of photochemical processes as greener technologies. | 10M |
| <hr/> | | |
| Q.6(A) | Explain in detail the synthesis of nanomaterials using hydrothermal method. | 10M |
| <p style="text-align: center;">OR</p> | | |
| Q.6(B) | Describe any two green chemistry applications of inorganic nanomaterials. | 10M |

*** END***

Hall Ticket No:

Question Paper Code: 14ECE404

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech III Year II Semester (R14) Supplementary End Semester Examinations – Dec 2018

(Regulations: R14)

INTRODUCTION TO MEMS

(Open Elective- Common to CE, EEE, ME, CSE)

Time: 3Hrs

Max Marks: 60

Attempt all the questions. All parts of the question must be answered in one place only.

All parts of Q.no 1 are compulsory. In Q.no 2 to 6 answer either Part-A or B only

- | | | | |
|-----------|-------|---|-----|
| Q.1 | i. | What is meant by MEMS technology? | 1M |
| | ii. | List any two applications of MEMS. | 1M |
| | iii. | Write the components of micro system. | 1M |
| | iv. | List out the applications of micro sensors. | 1M |
| | v. | What is Fick's law? | 1M |
| | vi. | List the materials used in MEMS. | 1M |
| | vii. | Draw the CAD structure of micro system design. | 1M |
| | viii. | What are the different types of MEMS simulation? | 1M |
| | ix. | What is turbulence measurement? | 1M |
| | x. | List out the merits of optical MEMS devices. | 1M |
| <hr/> | | | |
| Q.2(A) | | Discuss in detail about the evolution of MEMS. | 10M |
| OR | | | |
| Q.2(B) | | Explain in detail about MEMS design flow. | 10M |
| <hr/> | | | |
| Q.3(A) | | Explain in detail about combo drive devices. | 10M |
| OR | | | |
| Q.3(B) | | Write a note on parallel plate capacitor. | 10M |
| <hr/> | | | |
| Q.4(A) | | Describe in detail about Ion implantation and diffusion in micro fabrication process. | 10M |
| OR | | | |
| Q.4(B) | | Explain in detail about LIGA process in micro manufacturing. | 10M |
| <hr/> | | | |
| Q.5(A) | | Explain micro system design with a neat block diagram. | 10M |
| OR | | | |
| Q.5(B) | | Discuss the steps involved in designing Gyroscope using any one CAD tool. | 10M |
| <hr/> | | | |
| Q.6(A) | | Describe flow control applications of MEMS devices. | 10M |
| OR | | | |
| Q.6(B) | | Explain in detail about RF MEMS. | 10M |

***** END*****

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)

B.Tech III Year II Semester (R14) Supplementary End Semester Examinations – Dec 2018
(Regulations: R14)

ROBOTICS

(Open Elective-Common to CE, EEE, ME, CSE)

Time: 3Hrs

Max Marks: 60

Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 2 to 6 answer either Part-A or B only

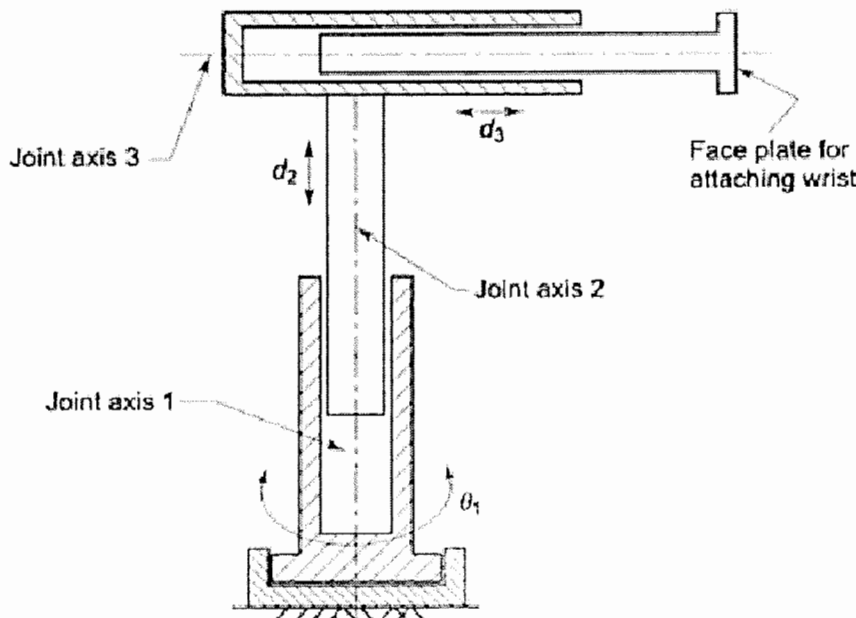
- | | | | |
|-----|-------|---|----|
| Q.1 | i. | What is smart robot? | 1M |
| | ii. | How many degrees of freedom does a wrist have? What is the purpose of these degrees of freedom? | 1M |
| | iii. | Define indirect Kinematics? | 1M |
| | iv. | Define DH parameters. | 1M |
| | v. | What is the difference between Dynamics and statics? | 1M |
| | vi. | What do you mean by Jacobian matrix? | 1M |
| | vii. | Define State Space Search | 1M |
| | viii. | What is angular velocity? | 1M |
| | ix. | Give an application example of a proximity sensor | 1M |
| | x. | What are the functions of sensors? | 1M |

- Q.2(A) Explain the different types of joints and Joint Notation Scheme that are commonly used in industrial robots? 10M

OR

- Q.2(B) Explain the programming techniques in robotics? What are the future prospect of robotics? 10M

- Q.3(A) Obtain the position and orientation of the tool point P with respect to the base for the 3-DOF, cylindrical (RPP) manipulator arm shown in Figure 1



10M

Figure 1: Mechanical structure of a 3-DOF cylindrical (RPP) manipulator arm

OR

Q.3(B) Explain the algorithm to assign frames to all links of a manipulator to get a consistent set of frames. 10M

Q.4(A) Determine the manipulator jacobian matrix for the 3-DOF articulated arm as shown in Figure 2. The overall transformation matrix for the endpoint of the arm is given as

$${}^0T_1 = {}^0T_1 {}^1T_2 {}^2T_3 = \begin{bmatrix} C_1 C_{23} & -C_1 S_{23} & S_1 & C_1 (L_3 C_{23} + L_2 C_2) \\ S_1 C_{23} & -S_1 S_{23} & -C_1 & S_1 (L_3 C_{23} + L_2 C_2) \\ S_{23} & C_{23} & 0 & L_3 S_{23} + L_2 S_2 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

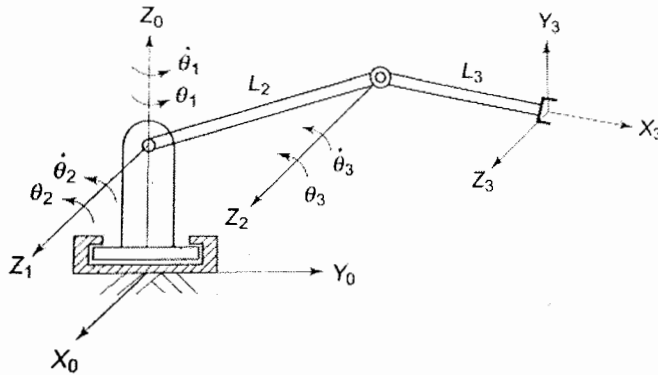


Figure 2: 3-DOF articulated manipulator arm 10M

OR

Q.4(B) What is a Jacobian singularity? How do we perform static analysis in dynamic modeling? 10M

Q.5(A) Explain the strategy of trajectory planning of the robot? Discuss about the adaptive path control system in robot? 10M

OR

Q.5(B) Draw the block diagram of open loop and closed loop system in control system? What is computed torque technique to control the manipulator? 10M

Q.6(A) Explain the force and torque sensing sensor in robot? Discuss the use of these sensors in robotics application? 10M

OR

Q.6(B) Briefly explain the working principle of proximity sensors with neat sketch. 10M

*** END***

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MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech III Year II Semester (R14) Supplementary End Semester Examinations – Dec 2018

VIRTUAL INSTRUMENTATION

(Open Elective- Common to CE, EEE, ME, CSE)

Time: 3Hrs

Max Marks: 60

Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 2 to 6 answer either Part-A or B only

- | | | | |
|-----------|-------|--|-----|
| Q.1 | i. | Define Virtual Instrumentation. | 1M |
| | ii. | What is Lab View? | 1M |
| | iii. | Note the panels used in Lab VIEW programming. | 1M |
| | iv. | Write about Major applications of VI. | 1M |
| | v. | Distinguish between cluster and array. | 1M |
| | vi. | What is Resolution? | 1M |
| | vii. | Distinguish between filters and windowing techniques. | 1M |
| | viii. | Mention about different types of correlation methods. | 1M |
| | ix. | Expand GUI. | 1M |
| | x. | How Virtual Laboratory can be used in VI. | 1M |
| <hr/> | | | |
| Q.2(A) | | Describe the differences between Virtual and traditional instruments. | 10M |
| OR | | | |
| Q.2(B) | | How Virtual Instrumentation plays major role in the Engineering Process. Explain. | 10M |
| <hr/> | | | |
| Q.3(A) | | Write the graphical programming models for the following Expressions. | 10M |
| | | i. $(ABC + BCD)ACD$ ii. $(A + B)^3$ And $(A - B)^3$ iii. $(A + B + C)^3$ | |
| OR | | | |
| Q.3(B) | | How 1-D and 2-D arrays are handled in Lab VIEW Programming. Explain about it with relevant Examples. | 10M |
| <hr/> | | | |
| Q.4(A) | | Write short notes on | |
| | i. | Installing Drivers. | 10M |
| | ii. | Data acquisition system in Lab VIEW. | |
| OR | | | |
| Q.4(B) | | Explain about the Procedural steps involved in selecting and configuring a Data Acquisition Device. | 10M |
| <hr/> | | | |
| Q.5(A) | | Explain about Transducers and Signal conditioning types required for Data Acquisition. | 10M |
| OR | | | |
| Q.5(B) | | What is PID controller? Design a PID Controller using Lab VIEW environment. | 10M |
| <hr/> | | | |
| Q.6(A) | | Describe any one application using Virtual Instrumentation software. | 10M |
| OR | | | |
| Q.6(B) | | Discuss about simulation of systems using Virtual Instrumentation. | 10M |

*** END***

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MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech III Year II Semester (R14) Supplementary End Semester Examinations – Dec 2018

(Regulations: R14)

PATTERN RECOGNITION AND ITS APPLICATIONS

(Open Elective- Common to CE, EEE, ME, CSE)

Time: 3Hrs

Max Marks: 60

Attempt all the questions. All parts of the question must be answered in one place only.

All parts of Q.no 1 are compulsory. In Q.no 2 to 6 answer either Part-A or B only

- | | | | |
|-----|-------|---|----|
| Q.1 | i. | How can classifiers be evaluated. | 1M |
| | ii. | What is supervised learning give suitable example? | 1M |
| | iii. | Which are the two schemes of Hierarchical clustering algorithm? | 1M |
| | iv. | What is node merging? | 1M |
| | v. | Write about string generation with example. | 1M |
| | vi. | Define strings. | 1M |
| | vii. | What should be done in case of missing data? | 1M |
| | viii. | What is entropy? | 1M |
| | ix. | What is NN rule? | 1M |
| | x. | How to detect boundaries of fuzzy classes. | 1M |
-
- Q.2(A) Describe in detail about unsupervised learning. 10M
- OR**
- Q.2(B) Describe in detail about design of pattern recognition system. 10M
-
- Q.3(A) Which are the two schemes of Hierarchical clustering algorithm? Give brief (any one) descriptions. 10M
- OR**
- Q.3(B) Write short notes on the following. 10M
- | | | | |
|--|-----|--------------------------------|-----|
| | i. | Clustering vs. classification. | 10M |
| | ii. | Cluster validation. | |
-
- Q.4(A) What is Syntactic Pattern Recognition approach; describe how it is suitable for structural pattern recognition. 10M
- OR**
- Q.4(B) Explain stochastic grammar and its applications. 10M
-
- Q.5(A) How feature selection is achieved through function approximation. 10M
- OR**
- Q.5(B) Explain how entropy minimization is useful in feature selection. 10M
-
- Q.6(A) Explain handwritten digit recognition system. 10M
- OR**
- Q.6(B) What do you mean by fuzzy decision making? Also discuss the fuzzy classification using suitable example. 10M

*** END***

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MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech III Year II Semester (R14) Supplementary End Semester Examinations – Dec 2018

(Regulations: R14)

HUMAN COMPUTER INTERACTION

(Open Elective-Common to CE, EEE, ME, ECE)

Time: 3Hrs

Max Marks: 60

Attempt all the questions. All parts of the question must be answered in one place only.

All parts of Q.no 1 are compulsory. In Q.no 2 to 6 answer either Part-A or B only

- | | | | |
|-----------|-------|--|-----|
| Q.1 | i. | Mention goals of User Interface Usability. | 1M |
| | ii. | Explain the importance of Audio Menus for Small Display Units | 1M |
| | iii. | What are various Classification of Menus? | 1M |
| | iv | Give the Metrics to Measure and Quantity Usability. | 1M |
| | v. | Write about various Display Technologies. | 1M |
| | vi | Explain any two important characteristics in Design | 1M |
| | vii. | List out the Selection Controls | 1M |
| | viii. | Explain the importance of Online Documentation | 1M |
| | ix. | What are the Function Keys? | 1M |
| | x. | List out various Design Tools for creating User Interface | 1M |
| | | | |
| Q.2(A) | | What are the characteristics of Graphical User Interface? | 10M |
| OR | | | |
| Q.2(B) | i. | List down the important Human Characteristics in Design Process | |
| | ii. | What are the potential Interaction Styles? Explain in detail about Direct Manipulation | 10M |
| | | | |
| Q.3(A) | | Explain techniques for determining Direct and Indirect Methods. | 10M |
| OR | | | |
| Q.3(B) | | Design GUI for Airline Reservation System. Include main functions such as Login page, Flight Search, Flight Book and other suitable functions. Draw the separate screen for each function. | 10M |
| | | | |
| Q.4(A) | | Discuss the following in respect of designing a Web Site. | |
| | i. | Browsing | 10M |
| | ii. | Search Facilities | |
| OR | | | |
| Q.4(B) | | Explain the various guidelines for presenting information on Screen | 10M |
| | | | |
| Q.5(A) | | Explain various Window Presentation Styles | 10M |
| OR | | | |
| Q.5(B) | | Discuss and elaborate the issues to be considered in choosing Colors for Web Pages. | 10M |
| | | | |
| Q.6(A) | | What are the uses of Video Displays? Explain various Video Display Devices in detail. | 10M |
| OR | | | |
| Q.6(B) | | What is Speech Digitization and Generation? Explain in detail. | 10M |

*** END***

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(UGC-AUTONOMOUS)

B.Tech III Year II Semester (R14) Supplementary End Semester Examinations – Dec 2018

(Regulations: R14)

COMPUTER GRAPHICS

(Open Elective-Common to CE, EEE, ME, ECE)

Time: 3Hrs

Max Marks: 60

Attempt all the questions. All parts of the question must be answered in one place only.

All parts of Q.no 1 are compulsory. In Q.no 2 to 6 answer either Part-A or B only

- | | | |
|-----------|--|-----|
| Q.1 | i. Define Pick Correlation. | 1M |
| | ii. Define Primitive. | 1M |
| | iii. Define DDA. | 1M |
| | iv. What is unweighted area sampling? | 1M |
| | v. Write the matrix form for 2D Translation and Rotation. | 1M |
| | vi. What is meant by Oblique Projections? | 1M |
| | vii. Define CSG. | 1M |
| | viii. Write the advantages of rational splines. | 1M |
| | ix. What is half toning? | 1M |
| | x. Define Complementary colors. | 1M |
| <hr/> | | |
| Q.2(A) | i. Explain the advantages of Interactive Graphics. | 5M |
| | ii. Explain the representative uses of Computer Graphics. | 5M |
| OR | | |
| Q.2(B) | Explain the architecture of raster display with a neat diagram. | 10M |
| <hr/> | | |
| Q.3(A) | Explain Filling rectangles and filling polygons. | 10M |
| OR | | |
| Q.3(B) | Define Clipping. Illustrate how to perform clipping lines by solving simultaneous equations. | 10M |
| <hr/> | | |
| Q.4(A) | Explain 3D Transformation techniques. | 10M |
| OR | | |
| Q.4(B) | What is perspective projection? Derive the transformation matrix for perspective projection. | 10M |
| <hr/> | | |
| Q.5(A) | Write Short notes on Bezier Surfaces and B-Spline Surfaces. | 10M |
| OR | | |
| Q.5(B) | Elaborate and compare five main representations used in Solid Modeling | 10M |
| <hr/> | | |
| Q.6(A) | Explain CIE Chromaticity diagram and state its advantages. | 10M |
| OR | | |
| Q.6(B) | i. Write short notes on halftone patterns. | 5M |
| | ii. Describe RGB color model. | 5M |

***** END*****

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

B.Tech III Year II Semester (R14) Supplementary End Semester Examinations – Dec 2018

(Regulations: R14)

MOBILE COMPUTING

(Open Elective- Common to CE, EEE, ME, ECE)

Time: 3Hrs

Max Marks: 60

Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 2 to 6 answer either Part-A or B only

- | | | |
|-----------|---|--|
| Q.1 | i. What do you mean by the terms Mobility and Computing?
ii. Define handoff. What are its types?
iii. "MAC protocol designed for infrastructure based wireless network may not work satisfactory in infrastructure-less environment"- Justify.
iv. Why collision-detection based protocols are not suitable for wireless networks?
v. What is route optimization?
vi. Differentiate the functionalities of foreign agent and home agent.
vii. To which layer RARP and DNS protocols belongs to?
viii. Illustrate the use of BOOTP protocol.
ix. What are piconet and scatternet?
x. In two lines give the functionalities of service discovery protocol (SDP). | 1M
1M
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1M
1M |
| OR | | |
| Q.2(A) | Explain the structure of mobile computing applications with neat sketch. | 10M |
| OR | | |
| Q.2(B) | Describe GSM architecture and its services with neat diagram. | 10M |
| OR | | |
| Q.3(A) | Briefly explain the various MAC issues with suitable examples. | 10M |
| OR | | |
| Q.3(B) | What are fixed assignment schemes of MAC protocol? Explain their mechanism in detail. | 10M |
| OR | | |
| Q.4(A) | Illustrate packet delivery mechanism in mobile IP network with a neat diagram. | 10M |
| OR | | |
| Q.4(B) | With a diagram explain DHCP and its protocol architecture. | 10M |
| OR | | |
| Q.5(A) | Discuss the congestion control mechanisms adopted by TCP in order to improve the performance of traditional networks. | 10M |
| OR | | |
| Q.5(B) | Briefly explain the M- TCP approach. How does M – TCP maintain end-to – end semantics? | 10M |
| OR | | |
| Q.6(A) | What is Bluetooth? How it is useful in mobile computing? Describe its protocol stack. | 10M |
| OR | | |
| Q.6(B) | What is wireless application protocol? Explain its architecture with neat diagram. | 10M |

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