LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
(AUTONOMOUS)

Regulations **R14**

B.Tech. (VIII Semester) (R14) Advanced Supplementary Examinations, November 2020

TIME TABLE

Time: 10.00 AM – 01.00 PM

DATE	ASE	CE	CSE	ECE	EEE	EIE	IT	ME
26-11-2020 (Thursday)	S349 - Principles of Management	S338 - Pavement Analysis and Design Engineering	S329 - Operations Research	S362 - Radar Systems	S230 - Energy Conservation and Audit	S311 - Micro Electro Mechanical Systems	OE-II S329 - Operations Research	S343 - Power Plant Engineering
27-11-2020 (Friday)	PE-IV S106 - Advanced Propulsion Systems	PE-IV S438 - Rural Road Technology; S111 - Advanced Structural Design	PE-IV S157 - Cloud Computing	PE-IV S375 - Satellite Communications; S426 - Wireless Sensor Networks	PE-IV S248 - FACTS Controllers; S263 - HVDC Transmission	PE-IV S229 - Embedded Systems Design; S107 - Advanced Sensors	PE-IV S326 - Object Oriented Software Engineering	PE-IV S353 - Production Planning and Control; S365 - Rapid Prototyping
28-11-2020 (Saturday)	OE-II S376 - Satellite Technology	OE-II S433 - Green Buildings; S436 - Modern Construction Systems and Techniques; S151 - Building Technology	OE-II S296 - Managing Innovation and Entrepreneurship	OE-II S140 - Automobile Electronics; S425 - Web Technologies; S246 - Evolutionary Computing Techniques; S371 - Robot Engineering	OE-II S373 - Robotics and Automation; S180 - Database Management Systems	OE-II S370 - Renewable Energy Sources	S270 - Industrial Management	OE-II S409 - Total Quality Management; S273 Innovation and Entrepreneurship

NOTE:
(i) Any omissions or clashes in this time table may please be informed to the Controller of Examinations immediately.
(ii) Even if government / JNTUK / College declares holiday on any of the above dates, the examinations shall be conducted as notified only.
(iii) For any clarification in respect of the above examinations, please contact the Controller of Examinations.

Date: 10-11-2020

CONTROLLER OF EXAMINATIONS

PRINCIPAL

Copy to: 1. All H.O.Ds for N.A.
2. All Notice Boards

H.T.No

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
(AUTONOMOUS)
L.B. Reddy Nagar :: Mylavaram – 521 230 :: Krishna Dist.:: A.P.

B.Tech. (VIII Semester) ~~Regular~~/Supplementary Examinations
S338-PAVEMENT ANALYSIS AND DESIGN ENGINEERING
(CE)

Time : 3 hours   Max. Marks : 75

PART-A
(Compulsory question)

Q.No	Questions	Marks	CO	BL
1(a)	List out the failures of flexible pavement.	1M	CO1	L1
(b)	List out the parameters required for evaluating the pavement thickness by group index method.	1M	CO2	L1
(c)	Mention formula for calculating the friction stress in reinforced cement concrete.	1M	CO3	L1
(d)	List the typical layers in flexible and rigid pavement.	1M	CO4	L1
(e)	Justify the necessity of geo synthetics in stabilization of pavement.	1M	CO5	L2
(f)	Mention the advantages of CBR test of soil.	2M	CO1	L1
(g)	State theoretical method of flexible pavement.	2M	CO2	L1
(h)	List the design elements of rigid pavement.	2M	CO3	L1
(i)	Differentiate between the functional and structural evaluation of pavement.	2M	CO4	L2
(j)	State the principle of mechanical soil stabilization method.	2M	CO5	L1

PART-B
(Answer any FOUR questions. All questions carry equal marks)

Q.No	Questions	Marks	CO	BL
2(a)	Describe the various types of stresses that are to be considered in flexible pavement design.	7M	CO1	L1
(b)	Discuss the effects of repeated application of loads on pavements.	8M	CO1	L2
3(a)	Design a pavement for construction of a bypass with the following data. Four lane single carriage way road with initial traffic in the year completion of construction 700 CV/day, growth rate per annum 8%, design life 20 years, vehicle damage factor 2.5 and design CBR of soil sub grade 5%.	7M	CO2	L6
(b)	Explain the design procedure recommended by IRC for design of a flexible pavement.	8M	CO2	L2
4.	Design the size and spacing of dowel bars at the expansion joints of a cement concrete pavement thickness 25cm with radius of relative stiffness 80cm for a design wheel load of 5000kg. Assume load capacity of dowel system as 40 % of the design wheel load. Joint width is 2.0 cm, permissible shear and flexural stresses in dowel bar are 1000 and 1400kg/cm² respectively and permissible bearing stress in CC is 100kg/cm².	15M	CO3	L6
5(a)	List and explain various techniques adopted for evaluation of pavement.	7M	CO4	L2
(b)	Discuss the deficiencies occur in the flexible pavement and rigid pavement.	8M	CO4	L2
6(a)	Explain briefly about the classification of geo-synthetics.	7M	CO5	L2
(b)	Summarize various advantages of stabilization with reference to highway pavements.	8M	CO5	L1
7.	Elaborate the procedure of designing flexible pavement by California resistance value method.	15M	CO2	L2
8(a)	Briefly explain the various techniques adopted for evaluation of highway pavements.	8M	CO3	L2
(b)	The CBR value of soil is 8%. Calculate total thickness of a pavement using design curve developed by IRC and formula developed by the U.S corps of engineers.	7M	CO3	L3

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B.Tech. (VIII Semester) ~~Regular~~/Supplementary Examinations
S111-ADVANCED STRUCTURAL DESIGN
(CE)

Time : 3 hours   Max. Marks : 75

Use the following codes: IS 456-2000, IS 800-2007 and steel tables Assume any necessary data

PART-A
(Compulsory question)

Q.No	Questions	Marks	CO	BL
1(a)	What is intermediate load carrying stiffener?	1M	CO3	L1
(b)	Define the term "shallow bin".	1M	CO2	L1
(c)	What is Butress in retaining walls?	1M	CO1	L1
(d)	Locate the position of crane hook for maximum vertical load on gantry girder.	1M	CO4	L2
(e)	Define web buckling.	1M	CO3	L1
(f)	State the procedural steps to calculate the width of counter fort in retaining walls.	2M	CO1	L1
(g)	What are the loads that act on silo?	2M	CO2	L1
(h)	Give the condition for providing the horizontal stiffeners in plate girder.	2M	CO3	L1
(i)	Write the critical moment formula and moment interaction formula of beams.	2M	CO3	L1
(j)	Mention the minimum thickness of plates for suspended bottom in a water tank with 6 lakhs liters capacity.	2M	CO5	L3

PART-B
(Answer any FOUR questions. All questions carry equal marks)

2.	Design heel slab and counterfort for a counterfort retaining wall to retain 5.6m height earth. Take unit weight of backfill is 18 kN/m³ SBC= 180kN/m², angle of internal friction is 30⁰ and center to center distance of counterforts is 3.0m. Assume coefficient of friction between soil and concrete is 0.45. Use M25 grade concrete and Fe 415 steel.	15M	CO1	L6
3.	Explain design procedure of chimney in detail.	15M	CO2	L2
4.	Design a welded plate girder of span 22m to carry a superimposed load of 30kN/m. Avoid use of bearing and intermediate stiffeners. Use E250 steel.	15M	CO3	L6
5.	Design a suitable section for a simply supported gantry girder for the following data: Spacing of columns = 4m. Crane capacity = 160 kN, Weight of the crane excluding the crab=250 kN. Weight of the crab=60kN. Minimum clearance of cross travel = 0.8 m. Wheel base = 5.3m, Centre to centre distance between gantry girder = 20 m. Height of the rail = 105mm, Expected number of stress cycles = 2 x 10⁶, Grade of the steel = E250.	15M	CO4	L6
6.	Design -circular elevated water tank (excluding staging) for a capacity of 2,00,000 liters. The height of the tank bottom above the ground level is 8.5 m. the tank is supported over 8 columns.	15M	CO5	L6
7.	Write a note on curtailment of flange plates in plate girder.	15M	CO3	L2
8.	Design stem for a counterfort retaining wall, if the height of wall above the ground level is 6m, SBC=200 kN/m², angle of internal friction is 30⁰ and unit weight of backfill is 18kN/m³. Keep spacing of counterforts as 3.2m. coefficient of friction between soil and concrete is 0.5. Use M25 grade concrete and Fe 415 steel.	15M	CO1	L6

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B.Tech. (VIII Semester) ~~Regular~~/Supplementary Examinations
S433-GREEN BUILDINGS
(CE)

Time : 3 hours

Max. Marks : 75

PART-A
(Compulsory question)

Q.No	Questions	Marks	CO	BL
1(a)	List out the health aspects inside the green building. Define green field and brown field.	1M	CO1	L1
(b)	Define decommissioning energy.	1M	CO2	L1
(c)	Name any four wind energy potential generating states in India.	1M	CO3	L1
(d)	List out the functional elements of sound pollution.	1M	CO4	L1
(e)	Name the certification criteria in IGBC rating system.	1M	CO5	L1
(f)	Summarize the water management in green building.	2M	CO1	L2
(g)	Differentiate between catching heat and storing heat in passive energy system.	2M	CO2	L2
(h)	Write a note on wind energy potential in India.	2M	CO3	L2
(i)	List out the factors considered for improving comfort conditions due to climate variations.	2M	CO4	L1
(j)	Name the stages in GRIHA assessment.	2M	CO5	L1

PART-B
(Answer any FOUR questions. All questions carry equal marks)

Q.No	Questions	Marks	CO	BL
2(a)	List out advantages and disadvantages of green and brown Fields.	7M	CO1	L1
(b)	Differentiate between site selection for green building and Conventional building.	8M	CO1	L2
3(a)	Elaborate energy systems used in green building constructions.	7M	CO2	L2
(b)	Illustrate heat and steam recovery through incineration.	8M	CO2	L3
4(a)	Explain any two success case studies of fully solar energy based green buildings in India.	7M	CO3	L2
(b)	Elaborate solar energy potential in India along with benefits achieved by the end of 2015.	8M	CO3	L2
5(a)	Discuss the Indoor Air Quality in green building with suitable examples.	7M	CO4	L2
(b)	Describe the concept and importance of climate change in green building.	8M	CO4	L2
6(a)	Discuss modular wastewater treatment system for built environment in green building.	7M	CO5	L2
(b)	Discuss the different stages in Leadership in Energy and Environmental Design rating system.	8M	CO5	L2
7(a)	Elaborate the salient features of green building material obtained from hollow blocks and its applications.	7M	CO1	L2
(b)	Discuss in detail about the alternate roofing materials in green building construction.	8M	CO1	L2
8(a)	Define the term sick building syndrome and summarize indoor air pollutants.	7M	CO4	L2
(b)	Elaborate various steps to apply energy efficient lighting in green building construction.	8M	CO4	L2

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B.Tech. (VIII Semester) ~~Regular~~/Supplementary Examinations

S329-OPERTATIONS RESEARCH
(CSE & IT)

Time : 3 hours   Max. Marks : 75

PART-A
(Compulsory question)

Q.No	Questions	Marks	CO	BL
1(a)	Define OR.	1M	CO1	L1
(b)	Explain about the unbalanced transportation problem.	1M	CO2	L2
(c)	What is inventory?	1M	CO3	L1
(d)	Explain the different types of customer's behavior in Queueing Model.	1M	CO4	L2
(e)	Explain the Bellman's principle of optimality in dynamic programmers.	1M	CO5	L2
(f)	Explain the applications of Operations Research.	2M	CO1	L2
(g)	What is assignment problem?	2M	CO2	L1
(h)	Find the EOQ for the following data: Annual usage= 1,000 pieces Expediting cost = Rs. 4 per order Cost per piece = Rs. 250 Inventory holding cost = 20% of average inventory Ordering cost = Rs. 6 per order Material holding cost = Re. 1 per piece	2M	CO3	L1
(i)	Explain the terms involved in $(M/M/1):(\infty/FCFS)$	2M	CO4	L2
(j)	Explain the various applications of Dynamic programming problem.	2M	CO5	L2

PART-B
(Answer any FOUR questions. All questions carry equal marks)

2.	Explain the Operation Research models.	15M	CO1	L2

3(a) Find an initial basic feasible solution to the following T.P. using Vogel's approximation method:

Origin	Destination 1	2	3	4	Availability
A	7	2	5	5	30
B	4	4	6	5	15
C	5	3	3	2	10
D	4	-1	4	2	20
Requirement	20	25	15	15	

7M   CO2   L3

(b) Solve the following assignment problem

	I	II	III	IV	V
1	11	17	8	16	20
2	9	7	12	6	15
3	13	16	15	12	16
4	21	24	17	28	26
5	14	10	12	11	13

8M   CO2   L3

4(a)	Explain clearly the various costs that are involved in inventory problems with suitable example.	7M	CO3	
(b)	The purchase price of a machine is Rs. 52,000. The installation charges amount to Rs. 14,400 and its scrap value is only Rs 6,400. The maintenance cost in various years is given below:	8M	CO4	L4

Year	1	2	3	4	5	6	7	8
Maintena nce Cost	1,000	3,000	4,000	6,000	8,400	11,600	1,6000	19,200

After how many years should the machine be replaced? Assume that the machine replacement can be done only at the year ends.

5.	Reduce the following game by dominance property and find the game value:	15M	CO3	L4

		Player B			
		I	II	III	IV
Player A	I	3	2	4	0
	II	3	4	2	4
	III	4	2	4	0
	IV	0	4	0	8

6.	Explain the various applications of Dynamic programming problem.	15M	CO5	L2

7.	Show by simplex method , that the following L.P.P has infinite number of non-basic feasible optimal solutions:	15M	CO1	L3

$$Maximize \quad Z = 4x_1 + 10x_2$$
$$subject\ to \quad 2x_1 + x_2 \leq 10,$$
$$2x_1 + 5x_2 \leq 20,$$
$$2x_1 + 3x_2 \leq 18,$$
$$x_1, x_2 \geq 0.$$

8(a)	Explain clearly the various costs that are involved in inventory problems with suitable example. How they are inter-related?	8M	CO3	L2
(b)	A TV repairman finds that the time spent on his jobs has an exponential distribution with mean 30 minutes. If he repairs sets in the order in which they come in, and if the arrival of sets is approximately Poisson with an average rate 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?	7M	CO4	L3

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B.Tech. (VIII Semester) ~~Regular~~/Supplementary Examinations

S362-RADAR SYSTEMS
(ECE)

Time : 3 hours   Max. Marks : 75

PART-A
(Compulsory question)

Q.No	Questions	Marks	CO	BL
1(a)	Define Unambiguous range in a radar system.	1M	CO1	L1
(b)	Why isolation between Transmitter and Receiver is required in CW Radar?	1M	CO2	L1
(c)	Relate Doppler frequency shift with radial velocity of a moving target.	1M	CO3	L2
(d)	What is Squint angle?	1M	CO4	L1
(e)	Recall the relation for Noise Figure.	1M	CO5	L1
(f)	List out some important applications of a radar system.	2M	CO1	L1
(g)	What is the principle of CW Radar?	2M	CO2	L1
(h)	What are blind speeds?	2M	CO3	L1
(i)	Define Beam, rotation and Target axis in conical scanning.	2M	CO4	L1
(j)	Define Noise Temperature.	2M	CO5	L1

PART-B
(Answer any FOUR questions. All questions carry equal marks)

2(a)	A low power, short range radar is solid-state throughout, including a low-noise RF amplifier which gives it an overall noise figure of 4.77dB. If the antenna diameter is 1m, the IF bandwidth is 500 kHz, the operating frequency is 8 GHz and the radar set is supposed to be capable of detecting targets of 5m2 cross sectional area at a maximum distance of 12 km, what must be the peak transmitted pulse power?	7M	CO1	L3
(b)	Estimate the radar cross-section of a spherical target if the wavelength of transmitting signal with reference to the target size is in Rayleigh region.	8M	CO1	L3
3(a)	Draw the block diagram of a FMCW Radar using side band super heterodyne receiver and explain its operation.	7M	CO2	L2
(b)	With the help of a suitable block diagram, Explain the operation of CW radar with Non-Zero IF in the receiver.	8M	CO2	L2
4(a)	An MTI radar is operated at 9GHz with a PRF of 3000 pps. Calculate the first two lowest blind speeds for this radar. Derive the formula used.	7M	CO3	L3
(b)	Compare MTI Radar with Pulse Doppler radar.	8M	CO3	L2

5(a)	With the help suitable diagram, Explain the working of Conical Scan Tracking Radar.	7M	CO4	L2
(b)	Explain the Cross-correlation Receiver.	8M	CO4	L2
6(a)	Compare Series and Parallel feeding Techniques.	7M	CO5	L2
(b)	Derive the expression for frequency response of the matched filter with Non White noise.	8M	CO5	L5
7(a)	What are the differences between pre integration and post integration of radar pulses at the Radar receiver?	7M	CO3	L1
(b)	A target is closing on a radial of radar with a relative velocity of 200 knots. Radar transmits wave energy at a wave length of 5cm.what will be the Doppler shift?	8M	CO3	L2
8(a)	Explain in detail about limitations to tracking accuracy.	7M	CO4	L2
(b)	Explain with the help of a neat block diagram Amplitude comparison Monopulse radar for extracting error signals in both Azimuth and Elevation.	8M	CO4	L2

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B.Tech. (VIII Semester) ~~Regular~~/Supplementary Examinations

S375-SATELLITE COMMUNICATIONS
(ECE)

Time : 3 hours   Max. Marks : 75

PART-A
(Compulsory question)

Q.No	Questions	Marks	CO	BL
1(a)	What do you mean by the term 'look angle'?	1M	CO1	L1
(b)	Write the main functions of TTC&M subsystem.	1M	CO2	L1
(c)	Differentiate single access and multiple access techniques.	1M	CO3	L1
(d)	Memorize the acronym for MATV.	1M	CO4	L1
(e)	Recall the frequency-band on which Direct broadcast satellite (DBS) television operates.	1M	CO5	L1
(f)	Define the terms 'Sub satellite Point' and 'Line of Nodes'.	2M	CO1	L1
(g)	List out the main types of antennas used on satellite.	2M	CO2	L1
(h)	Mention at least two demerits of FDMA.	2M	CO3	L1
(i)	Name at least two important design requirements for the selection of an earth station.	2M	CO4	L1
(j)	Identify at least two applications of GPS.	2M	CO5	L1

PART-B
(Answer any FOUR questions. All questions carry equal marks)

2(a)	Differentiate between the geosynchronous and geostationary orbits.	7M	CO1	L2
(b)	Discuss the following terms: (i)Apogee (ii) Perigee (iii) Line of apsides (iv) Line of nodes.	8M	CO1	L2
3(a)	A 4GHz receiver with the following noise temperatures and gains: T_{in}=25K, T_{RF}=50K, T_{IF}=1000K, T_m=500K, G_{RF}=23dB, G_{IF}=30dB, G_m= -10dB. Obtain the system noise temperature.	7M	CO2	L3
(b)	Illustrate the working of dual conversion bent-pipe transponder With a block diagram.	8M	CO2	L3
4(a)	Elaborate the concept of TDMA by assigning different fixed time slots for different users.	7M	CO3	L2
(b)	List out the merits and de-merits of CDMA.	8M	CO3	L1
5(a)	Draw the structure of Community Antenna TV and discuss its functions.	7M	CO4	L2
(b)	Summarize the operation of receive only home TV system with block diagram.	8M	CO4	L2
6(a)	Differentiate between star and mesh network configurations of very small aperture terminal (VSAT).	7M	CO5	L2
(b)	Explain the concepts of MSAT with the help of diagram.	8M	CO5	L2
7(a)	Identify different types of launch vehicles and discuss the same with example.	7M	CO1	L2
(b)	Tabulate the differences between LEO, MEO and GEO satellites.	8M	CO1	L2
8(a)	Describe the functions of telemetry, tracking and command (TT&C) control and monitoring in a space segment.	7M	CO2	L2
(b)	Analyze the structure and function of a spin stabilization mechanism.	8M	CO2	L4

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B.Tech. VIII Semester) ~~Regular~~/Supplementary Examinations

S425-WEB TECHNOLOGIES
(ECE)

Time : 3 hours   Max. Marks : 75

PART-A
(Compulsory question)

Q.No	Questions	Marks	CO	BL
1(a)	What are the various styles in CSS?	1M	CO1	L1
(b)	What is meant by document object model?	1M	CO2	L1
(c)	What are various servlet life cycle methods?	1M	CO3	L1
(d)	What is Session Implicit Object in JSP?	1M	CO4	L1
(e)	Write limitations of AWT.	1M	CO5	L1
(f)	Distinguish between client side scripting and server side scripting.	2M	CO1	L4
(g)	Explain in brief about XML schema.	2M	CO2	L2
(h)	What is meant by a Cookie?	2M	CO3	L1
(i)	Explain comments used in JSP.	2M	CO4	L2
(j)	What is ActionClass in Structs?	2M	CO5	L1

PART-B
(Answer any FOUR questions. All questions carry equal marks)

Q.No	Questions	Marks	CO	BL
2(a)	What is HTML? Discuss how you create user registration forms using HTML Tags with suitable examples.	7M	CO1	L6
(b)	Explain Java script objects in brief.	8M	CO1	L2
3(a)	Explain in detail about Java Bean API.	7M	CO2	L2
(b)	Explain in detail about BDK introspection.	8M	CO2	L2
4(a)	Demonstate a servlet program illustrating parameter passing mechanism.	7M	CO3	L2
(b)	Explain Java servlet life cycle with the help of a neat sketch.	8M	CO3	L2
5(a)	Discuss about JSP processing.	7M	CO4	L6
(b)	Explain generating dynamic content using scripting elements.	8M	CO4	L2
6(a)	Construct an application to explain the use of JTabbedPane.	7M	CO5	L3
(b)	Explain the different roles of action in struts framework.	8M	CO5	L2
7(a)	What do you mean by HTTP GET and POST requests? Explain with example the development of servlet that handles an HTTP GET request.	7M	CO3	L2
(b)	What is MVC? Explain JSP application design with MVC.	8M	CO5	L2
8(a)	Explain the working of XML processors in detail also mention the purpose of XML processors.	7M	CO2	L2
(b)	Explain how XLST works with neat illustrations.	8M	CO2	L2

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B.Tech. (VIII Semester) ~~Regular~~/Supplementary Examinations

S248-FACTS CONTROLLERS
(EEE)   JCY

Time : 3 hours   Max. Marks : 75

PART-A
(Compulsory question)

Q.No	Questions	Marks	CO	BL
1(a)	List the advantages of transmission interconnections.	1M	CO1	L1
(b)	Write the full form for TSR.	1M	CO1	L1
(c)	Draw the circuit diagram for TSSC.	1M	CO2	L2
(d)	Expand the term TCPAR.	1M	CO1	L2
(e)	Where the first UPFC was implemented?	1M	CO2	L2
(f)	What are the objectives of FACTS?	2M	CO4	L2
(g)	Draw the V-I characteristics of TSC.	2M	CO2	L2
(h)	List the applications of TCSC.	2M	CO4	L2
(i)	List the applications of voltage regulators.	2M	CO4	L2
(j)	What is independent real and reactive power flow control in UPFC?	2M	CO2	L2

PART-B
(Answer any FOUR questions. All questions carry equal marks)

2.	Describe the basic types of FACTS controllers with neat diagrams.	15M	CO1	L1
3(a)	Discuss the objectives of ideal shunt compensation.	7M	CO4	L2
(b)	Illustrate the mid-point shunt compensation of two – machine model of power system.	8M	CO2	L2
4(a)	Illustrate the objectives of series compensation.	8M	CO4	L2
(b)	Explain the operation of GCSC with neat diagram.	7M	CO3	L2
5(a)	Illustrate the operation of continuous thyristor controlled voltage regulators with inductive load.	7M	CO3	L2
(b)	Describe the basic internal control scheme for the delay angle controlled thyristor tap changer in voltage regulators.	8M	CO3	L2
6(a)	Elaborate the operation of UPFC with neat diagram.	7M	CO2	L2
(b)	Discuss the conventional controllable parameters of UPFC.	8M	CO2	L2
7(a)	Illustrate the dynamic stability considerations of a transmission interconnection.	7M	CO4	L2
(b)	Describe the working principle of STATCOM with a neat sketch.	8M	CO4	L2
8(a)	Draw and discuss the overall control structure of UPFC.	7M	CO3	L2
(b)	Discuss the power flow control by Phase Angle Regulators.	8M	CO3	L2

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B.Tech.VII Semester Regular/Supplementary Examinations

S180-DATABASE MANAGEMENT SYSTEMS

Time: 3 hours   (EEE)   Max. Marks: 75

PART-A
(Compulsory question)

1(a)	Define the entity and types attributes.	[1M]
(b)	Explain the referential integrity constraint.	[1M]
(c)	Define the MVD.	[1M]
(d)	Define serializability.	[1M]
(e)	Define the need of Indexing.	[1M]
(f)	Describe the different database schemas.	[2M]
(g)	Explain the different SQL data types.	[2M]
(h)	Explain the inclusion dependences.	[2M]
(i)	Explain the concurrency control.	[2M]
(j)	Explain the variable-length record.	[2M]

PART-B
(Answer any FOUR questions. All questions carry equal marks)

2(a)	Differentiate between the database systems and file system.	[7M]
(b)	Draw and explain the generalization and specialization of diagrams on university.	[8M]
3(a)	Explain about the selection and projection of relation algebra.	[7M]
(b)	Define views. Explain the need of views & its constraints with an example.	[8M]
4(a)	Explain the third normal form with an example.	[7M]
(b)	Explain the differences between functional dependencies & loss less join decompositions.	[8M]
5(a)	Describe the serializability of schedules with an example.	[7M]
(b)	Explain the time stamping protocols for concurrency control.	[8M]
6(a)	Describe how search, insert, and delete operations work in ISAM indexes.	[7M]
(b)	What is the order of a B+ tree? Describe the format of nodes in a B+ tree. Why nodes at the leaf are level linked?	[8M]
7(a)	Describe the architecture of database system.	[7M]
(b)	Explain the set operations and joins in relation algebra.	[8M]
8(a)	Explain the acid properties in transaction system.	[7M]
(b)	Consider the following schema: Suppliers (sid: integer, sname: string, address: string) Parts (pid: integer, pname: string, color: string) Catalog (sid: integer, pid: integer, cost: real) 1. Find the sids of suppliers who supply only red parts. 2. Find the sids of suppliers who supply a red part and a green part. 3. Find the sids of suppliers who supply a red part or a green part. 4. For every supplier that only supplies green parts, print the name of the supplier and the total number of parts that she supplies.	[8M]

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H.T.No

R14

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
(AUTONOMOUS)
L.B. Reddy Nagar :: Mylavaram – 521 230 :: Krishna Dist.::A.P.

B.Tech. (VIII) Semester ~~Regular~~/Supplementary Examinations

S373-ROBOTICS AND AUTOMATION
(EEE)

Time : 3 hours

Max. Marks : 75

PART-A
(Compulsory question)

Q.No	Questions	Marks	CO	BL
1(a)	Define a robot.	1M	CO1	L1
(b)	List any two motions of robots.	1M	CO1	L1
(c)	What do you mean by vacuum cups?	1M	CO2	L4
(d)	List two types of robot programming.	1M	CO3	L1
(e)	What is optical encoder?	1M	CO4	L4
(f)	List two strategies for automation.	2M	CO1	L1
(g)	What are the six degrees of freedom for a robot?	2M	CO2	L4
(h)	List the types of end effectors.	2M	CO1	L1
(i)	What are sensor commands?	2M	CO3	L4
(j)	What is force encoder?	2M	CO4	L4

PART-B
(Answer any FOUR questions. All questions carry equal marks)

2(a)	Explain hydraulic components circuits.	7M	CO1	L2
(b)	Explain the design process of material handling systems.	8M	CO1	L2
3(a)	Explain the work volume in robotics.	7M	CO2	L2
(b)	What are the control specifications of robotics?	8M	CO2	L2
4(a)	What are magnetic and vacuum grippers?	7M	CO2	L2
(b)	Explain the end effectors interface.	8M	CO3	L2
5(a)	What is VAL II programming language?	7M	CO3	L2
(b)	What is end effector and sensor commands?	8M	CO4	L2
6(a)	Explain the acoustics and optic sensors.	7M	CO4	L2
(b)	Explain the robotics applications for additive manufacturing.	8M	CO4	L2
7(a)	Explain the necessity of automation in robotics.	7M	CO1	L2
(b)	What is lead through method?	8M	CO3	L2
8(a)	Explain robot anatomy.	7M	CO1	L1
(b)	What do you mean by machine vision?	8M	CO2	L1

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B.Tech. (VIII Semester) ~~Regular~~/Supplementary Examinations

S311-MICRO ELECTRO MECHANICAL SYSTEMS
(EIE)

Time : 3 hours   Max. Marks : 75

PART-A
(Compulsory question)

Q.No	Questions	Marks	CO	BL
1(a)	Define the term MEMS.	1M	CO1	L1
(b)	List the design constraints required for Designing a Micro device.	1M	CO2	L1
(c)	Name the carrier Gas used in Physical Etching.	1M	CO3	L1
(d)	Classify the Micro fabrication processes.	1M	CO4	L1
(e)	Show the arrangement used for Microgrippers.	1M	CO5	L1
(f)	Label the functional diagram of Micro Actuator.	2M	CO1	L1
(g)	Identify the parameters involved in the Packaging.	2M	CO2	L1
(h)	List the advantages and disadvantages of Bulk Micromachining.	2M	CO3	L1
(i)	Define Etching and Classify the etching process based on Etchants.	2M	CO4	L1
(j)	What is the working principle of Thermocouple?	2M	CO5	L1

PART-B
(Answer any FOUR questions. All questions carry equal marks)

Q.No	Questions	Marks	CO	BL
2(a)	Illustrate the working principle of Micro actuator with an example.	7M	CO1	L2
(b)	Summarize about MEMS and list the available MEMS products for different areas.	8M	CO1	L2
3(a)	Define the Trimmer force scaling vector and represent a Force, acceleration, time and power density with Trimmer matrix.	7M	CO2	L2
(b)	Apply Scaling laws to determine the Electrostatic forces generated by a pair of parallel plate electrodes, if both the length L and the width W of these plates are reduced by a factor of 10.	8M	CO2	L3
4(a)	Identify the different techniques for adding impurities to the substrate and describe any one method with neat diagram.	7M	CO3	L2
(b)	Develop the structure of cantilever beam on substrate using Surface micromachining.	8M	CO3	L2
5(a)	Describe the LIGA process with neat sketches.	8M	CO4	L2
(b)	Discuss in detail about: (i) Adhesion of layers (ii) Interfacial stresses (iii) Stiction.	7M	CO4	L2
6(a)	Describe the working principle of Micro pressure sensor.	7M	CO5	L2
(b)	Classify the Micro Actuators based on their functioning and explain any two with neat sketch.	8M	CO5	L2
7(a)	Differentiate Isotropic etching with Anisotropic etching.	7M	CO4	L2
(b)	Classify the substrate materials used in fabrication. Why Silicon is used as a base material in Microsystems?	8M	CO1	L2
8(a)	Apply the scaling laws to find the torque required to turning a micro mirror with a reduction of 50% in the dimensions.	7M	CO2	L3
(b)	Describe the working of principle of one Biomedical sensor.	8M	CO5	L2

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B.Tech. (VIII Semester) ~~Regular~~/Supplementary Examinations

S229-EMBEDDED SYSTEMS DESIGN
(EIE)

Time : 3 hours   Max. Marks : 75

PART-A
(Compulsory question)

Q.No	Questions	Marks	CO	BL
1(a)	Name the basic embedded firmware design approaches.	1M	CO1	L1
(b)	Extend the term EEPROM.	1M	CO1	L1
(c)	Define context.	1M	CO3	L1
(d)	What is inter-process communication in an embedded system?	1M	CO2	L1
(e)	Mention any two services of OS.	1M	CO2	L1
(f)	List the Non Operational Quality Attributes of an ES.	2M	CO1	L1
(g)	Write any two differences between microprocessors and microcontrollers.	2M	CO1	L1
(h)	Mention the features of ISRs.	2M	CO3	L1
(i)	Define thread with state diagram.	2M	CO3	L1
(j)	Name the any four scheduling.	2M	CO4	L1

PART-B
(Answer any FOUR questions. All questions carry equal marks)

Q.No	Questions	Marks	CO	BL
2(a)	Interpret the classification of an embedded system based on complexity and performance.	7M	CO1	L2
(b)	Explain a real life example on the bonding of embedded technology with human life.	8M	CO3	L2
3(a)	Illustrate the role of DSP in embedded system design.	7M	CO1	L2
(b)	Differentiate the big-endian and little-endian processes.	8M	CO1	L2
4(a)	Explain the device drivers for with examples.	7M	CO2	L2
(b)	Discuss the terms (i) Interrupt Latency (ii) Dead line.	8M	CO2	L2
5(a)	Discuss about multiple processes in embedded system.	7M	CO4	L2
(b)	Illustrate in detail about TCB with structure and its functions.	8M	CO4	L2
6(a)	Illustrate the characteristics of RTOS.	7M	CO5	L2
(b)	Interpret an embedded operating system.	8M	CO5	L2
7(a)	Summarize the role of (i) Brown-out protection circuit (ii) Oscillator unit.	7M	CO2	L2
(b)	Compare and Contrast the I2C and SPI communication interface.	8M	CO2	L2
8(a)	Write short notes on OS message queue.	7M	CO3	L2
(b)	Remember the scheduling with interrupts.	8M	CO2	L1

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