

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
(AUTONOMOUS)

B.Tech. (VIII Semester) (R14) Regular and Supplementary Examinations, September 2020

A.Y. 2019-20

REVISED TIME TABLE

Regulations: **R14**

DATE	TIME	ASE	CE	CSE	ECE	EEE	EIE	IT	ME
12-09-2020 (Saturday)	10.15 AM – 1.15 PM	--	--	S329 - Operations Research	S362 - Radar Systems	--	S311 - Micro Electro Mechanical Systems	OE-II S329 - Operations Research	--
	2.15 PM – 5.15 PM	S349 - Principles of Management	S338 - Pavement Analysis and Design Engineering	--	--	S230 - Energy Conservation and Audit	--	--	S343 - Power Plant Engineering
16-09-2020 (Wednesday)	10.15 AM – 1.15 PM	--	--	OE-II S296 - Managing Innovation and Entrepreneurship	OE-II S140 - Automobile Electronics S425 - Web Technologies S246 - Evolutionary Computing Techniques S371 - Robot Engineering	--	OE-II S370 - Renewable Energy Sources	S270 - Industrial Management	--
	2.15 PM – 5.15 PM	OE-II S376 - Satellite Technology	OE-II S433 - Green Buildings S436 - Modern Construction Systems and Techniques S151 - Building Technology	--	--	OE-II S373 - Robotics and Automation S180 - Database Management Systems	--	--	OE-II S409 - Total Quality Management S273 Innovation and Entrepreneurship
19-09-2020 (Saturday)	10.15 AM – 1.15 PM	--	--	PE-IV S157 - Cloud Computing	PE-IV S375 - Satellite Communications S426 - Wireless Sensor Networks	--	PE-IV S229 - Embedded Systems Design S107 - Advanced Sensors	PE-IV S326 - Object Oriented Software Engineering	--
	2.15 PM – 5.15 PM	PE-IV S106 - Advanced Propulsion Systems	PE-IV S438 - Rural Road Technology S111 - Advanced Structural Design	--	--	PE-IV S248 - FACTS Controllers S263 - HVDC Transmission	--	--	PE-IV S353 - Production Planning and Control S365 - Rapid Prototyping

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: 07-09-2020

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

H. M. Chakraborty
CONTROLLER OF EXAMINATIONS

A. M. 2
PRINCIPAL
7/9/2020

K. Srinivasan

**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

**S106-ADVANCED PROPULSION SYSTEMS
(AE)**

Time : 3 hours

Max. Marks : 75

PART-A

(Compulsory question)

Q.No	Questions	Marks	CO	BL
1(a)	Define Ramjet engine.	1M	CO1	L1
(b)	Define scramjet engine.	1M	CO1	L1
(c)	Explain about electro thermal thrusters.	1M	CO1	L1
(d)	Explain about electrostatic thrusters.	1M	CO3	L1
(e)	Explain about the Basic Principle of Nuclear Propulsion.	1M	CO3	L1
(f)	Define Fission Process.	2M	CO2	L1
(g)	Explain about the Micro Propulsion With Application of Mems.	2M	CO2	L1
(h)	Explain The Working Principle of Anti-Matter Propulsion.	2M	CO4	L1
(i)	Define solar sails.	2M	CO4	L1
(j)	Define micro ppt thrusters.	2M	CO4	L1

PART-B

(Answer any FOUR questions. All questions carry equal marks)

2(a)	Discuss the topping/staged combustion cycle.	7M	CO1	L2
(b)	Draw a schematic diagram of an SCREAMJET engine and explain its operation.	8M	CO1	L2
3(a)	Discuss the applications and hazards of nuclear propulsion system.	7M	CO2	L2
(b)	Discuss the Chain Reaction in Nuclear Propulsion System for 3 steps.	8M	CO2	L2
4(a)	Describe about the working procedure of electro thermal thruster by using arc-jet.	7M	CO3	L2
(b)	Explain about VASIMAR with neat sketch.	8M	CO3	L2
5(a)	Show the differences between Electrostatic Propulsion and Propellant Less Propulsion.	7M	CO4	L2
(b)	Show Basic Diagram Of Anti-Matter Propulsion System and Explain The Working Principle of Anti-Matter Propulsion.	8M	CO4	L2
6(a)	Illustrate about the working principle of photon rockets.	7M	CO4	L2
(b)	Explain about the working principle of chemical propulsion system.	8M	CO4	L2
7(a)	Illustrate about Gridded ion thrusters.	7M	CO2	L2
(b)	Discuss the application of Electric Propulsion Engines.	8M	CO2	L2
8(a)	Differentiate startup and shut down.	7M	CO3	L2
(b)	Explain about the control drums.	8M	CO3	L2

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

**S376-SATELLITE TECHNOLOGY
(ASE)**

Time : 3 hours

Max. Marks : 75

**PART-A
(Compulsory question)**

Q.No	Questions	Marks	CO	BL
1(a)	Write a short note on radiation belts.	1M	CO1	L1
(b)	Write a short note on various orbital maneuvers.	1M	CO2	L1
(c)	Explain the need of thermal control for a satellite.	1M	CO3	L1
(d)	List out the various techniques used to stabilize non-spinning space crafts.	1M	CO4	L1
(e)	Explain how a battery is charged in satellite.	1M	CO5	L1
(f)	Explain in brief about space mission.	2M	CO1	L1
(g)	List out the applications of satellite based on the earth orbits.	2M	CO2	L1
(h)	How would you classify staging of rockets? Explain with neat sketch?	2M	CO3	L1
(i)	Write a short note on various thrusters used in spacecraft stability.	2M	CO4	L1
(j)	Explain various source of power systems used in satellites.	2M	CO5	L1

PART-B

(Answer any FOUR questions. All questions carry equal marks)

2(a)	Explain in brief about various types of earth orbits with altitude ranges.	7M	CO1	L2
(b)	Identify at least one satellite application in the field of communication and discuss the same in detail.	8M	CO1	L2
3(a)	Explain basic orbital elements. Also state kepler's laws of Planetary motion.	7M	CO2	L2
(b)	Distinguish between circular and elliptical orbital motion of a body in a nonrotating reference frame with its origin at another body.	8M	CO2	L4
4(a)	What material should be preferred for manufacturing best quality heat shield for satellites explain in brief?	7M	CO3	L2
(b)	What is the effect of a rain on the uplink and downlink of satellite systems?	8M	CO3	L1
5(a)	Explain how magnetic torque sensor is useful in controlling attitude of a spacecraft.	7M	CO4	L2
(b)	Distinguish between spin-stabilization and dual-spin stabilization for a space crafts.	8M	CO4	L2
6(a)	Explain briefly power generation and power storage in a satellite.	7M	CO5	L2
(b)	Describe the Satellite bus sub systems. Also explain each sub system in brief.	8M	CO5	L2
7(a)	Explain in detail various primary factors needed for defining an orbit of a satellite.	7M	CO1	L2
(b)	Compare the difference between bi-propellant and mono propellant rocket engines.	8M	CO1	L3
8(a)	Explain about gravity gradient stabilizing.	7M	CO2	L2
(b)	Write short notes on (i) Mass expulsion systems (ii) Sun and star sensor.	8M	CO4	L1

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

**S349-PRINCIPLES OF MANAGEMENT
(ASE)**

Time : 3 hours

Max. Marks : 75

PART-A

(Compulsory question)

Q.No	Questions	Marks	CO	BL
1(a)	Define Management.	1M	CO1	L1
(b)	What is Decision Making.	1M	CO2	L1
(c)	Recall Line Organization.	1M	CO3	L1
(d)	Recite Leadership.	1M	CO4	L1
(e)	Describe Feedback.	1M	CO5	L1
(f)	What are the Skills required for a dynamic manager?	2M	CO1	L1
(g)	Define MBO.	2M	CO2	L1
(h)	What is Decentralization of Authority?	2M	CO3	L1
(i)	Recite the concept of Managerial Grid.	2M	CO4	L1
(j)	Recall any 2 Control Techniques.	2M	CO5	L1

PART-B

(Answer any FOUR questions. All questions carry equal marks)

2(a)	The role of management is to achieve the common objectives with the resources available'. Elucidate.	7M	CO1	L2
(b)	Comment on the challenges faced by the management in the present industrial environment.	8M	CO1	L2
3(a)	Bring out the importance of Planning in Management along with its limitations.	7M	CO2	L2
(b)	'Decision Making is the primary task of the manager'. Discuss.	8M	CO2	L2
4(a)	What do you mean by Organization Structure? Discuss the factors determining in organization structure.	7M	CO3	L2
(b)	List and evaluate factors affecting staffing? Which ones are most critical today? Explain.	8M	CO3	L2
5(a)	'Directing is the heart of administration'. Comment.	7M	CO4	L2
(b)	'Good leadership is an integral part of effective direction'. Substantiate the statement.	8M	CO4	L2
6(a)	'Planning plays a vital role in Management'. Comment.	7M	CO5	L2
(b)	Discuss the modern techniques of Control.	8M	CO5	L2
7(a)	How is Staffing related to other managerial functions and activities?	7M	CO3	L2
(b)	What are Theory X and Theory Y assumptions? State your agreements or disagreements with these assumptions.	8M	CO4	L2
8(a)	What is the scope of Management? Show and explain the functional areas of Management.	7M	CO1	L2
(b)	Describe in detail the process of decision making.	8M	CO2	L2

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

**S438-RURAL ROAD TECHNOLOGY
(CE)**

g.m.v.

Time : 3 hours

Max. Marks : 75

PART-A

(Compulsory question)

Q.No	Questions	Marks	CO	BL
1(a)	Mention the fundamental principle of network planning.	1M	CO1	L1
(b)	Define pavement.	1M	CO2	L1
(c)	When is overlay needed in pavements?	1M	CO3	L1
(d)	Label the two classes of fly ash.	1M	CO4	L1
(e)	Name the activities included in corrective maintenance.	1M	CO5	L1
(f)	List the special considerations for the road alignment.	2M	CO1	L1
(g)	List a few desirable properties of road materials.	2M	CO2	L1
(h)	List any two differences between concrete pavement and bituminous concrete pavement.	2M	CO3	L1
(i)	List the activities for the control of compaction.	2M	CO4	L1
(j)	Recall the causes of cracks.	2M	CO5	L1

PART-B

(Answer any FOUR questions. All questions carry equal marks)

2(a)	Describe the term "Utility value" in network planning.	7M	CO1	L2
(b)	Discuss the various Governing factors affecting on route selection.	8M	CO1	L2
3(a)	Describe about the Pavement surface characteristics.	7M	CO2	L2
(b)	Illustrate the functions of the components of the flexible pavements.	8M	CO2	L2
4.	Discuss in brief the construction practice with modern material and methods to be adopted for a high type of bituminous pavement as per IRC recommendations.	15M	CO3	L2
5(a)	Explain in detail fly ash embankment with neat sketch.	7M	CO4	L2
(b)	Describe the role of Fly ash in stabilized base course with merits and demerits.	8M	CO4	L2
6.	Outline the cracks and defects in flexible pavements and describe their respective symptoms, possible causes, treatment/repair for each defect.	15M	CO5	L2
7(a)	Discuss in detail the different types of tests to be conducted to check suitability of aggregate material in pavement design.	7M	CO2	L2
(b)	Summarize the construction procedure of the Bituminous Concrete road.	8M	CO3	L2
8(a)	Illustrate the typical failures in rigid pavements.	7M	CO5	L2
(b)	Explain in detail various design practices normally adopted in rigid pavement design as per IRC standards.	8M	CO2	L2

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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)	Define lightning.	1M	CO1	L1
(b)	List out the various forms of energy used in buildings.	1M	CO2	L1
(c)	Define wind energy.	1M	CO3	L1
(d)	List the various techniques for passive cooling.	1M	CO4	L1
(e)	Mention the Green Building rating systems.	1M	CO5	L1
(f)	Identify the benefits of Green buildings.	2M	CO1	L1
(g)	List out various water harvesting in buildings.	2M	CO2	L1
(h)	Describe the potential of solar energy in India.	2M	CO3	L1
(i)	Mention the impact of climate change on building environment.	2M	CO4	L1
(j)	Define building automation.	2M	CO5	L1

PART-B

(Answer any FOUR questions. All questions carry equal marks)

2(a)	Summarize the typical features of green buildings.	7M	CO1	L2
(b)	Discuss about the various paints which reduces the heat in buildings.	8M	CO1	L2
3(a)	Summarize the various water conservation systems in buildings.	7M	CO2	L2
(b)	Describe the energy used in transportation and construction of building.	8M	CO2	L2
4(a)	Differentiate wind and solar energy harvesting.	7M	CO3	L2
(b)	List out the uses of renewable energy resources.	8M	CO3	L1
5.	Discuss about passive cooling and garden roof.	15M	CO4	L2
6(a)	Differentiate Indian rating system and Green rating system.	7M	CO5	L2
(b)	Describe building management system.	8M	CO5	L2
7(a)	Explain about the planning for storm water drainage system.	7M	CO1	L2
(b)	Describe in detail about Life cycles Assessment.	8M	CO2	L2
8(a)	Summarize the principles of thermal design.	7M	CO4	L2
(b)	Describe in detail about Green buildings.	8M	CO1	L2

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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)	Quote the legal single axle load as per IRC guidelines.	1M	CO1	L1
(b)	Label the design life of flexible pavement.	1M	CO2	L1
(c)	Identify the modulus of rupture for M20 grade concrete.	1M	CO3	L1
(d)	Identify the most common test used in evaluating soil strength.	1M	CO4	L1
(e)	Describe the most commonly used material for stabilization of soils.	1M	CO5	L1
(f)	List the requirements of a pavement.	2M	CO1	L1
(g)	List the major modes of structural failure in flexible pavements.	2M	CO2	L1
(h)	Write any one function for providing dowel bars and tie bars in Cement concrete pavement.	2M	CO3	L1
(i)	List the problems of highway rehabilitation.	2M	CO4	L1
(j)	List the factors on which strength characteristics of soil depends on.	2M	CO5	L1

PART-B

(Answer any FOUR questions. All questions carry equal marks)

2(a)	Discuss the various combinations of stresses considered in concrete slab design.	7M	CO1	L2
(b)	Explain the brief concepts of layered system in flexible pavements.	8M	CO1	L2
3.	Write the broad classification of design methods of flexible pavement. Illustrate the design guidelines of flexible pavements as per the Indian Roads Congress Method (IRC: 37- 2001).	15M	CO2	L3
4(a)	Summarize warping stress. With a sketch how warping stresses are developed in CC pavements.	7M	CO3	L2
(b)	Explain the need for joints in cement concrete pavements and mention the IRC guidelines for joint spacing.	8M	CO3	L2
5(a)	What are the causes of pot holes and illustrate the step by step procedure to repair the same?	7M	CO4	L2
(b)	What are the methods of pavement evaluation? Describe the Present Serviceability Index and Present Serviceability rating concept in functional evaluation of pavement.	8M	CO4	L2

S338-PAVEMENT ANALYSIS AND DESIGN ENGINEERING

6(a)	Explain various methods for soil stabilization. Discuss the procedure for soil lime stabilization in a detailed manner.	7M	CO5	L2
(b)	Show the two important field control tests used for adequate quality control.	8M	CO5	L3
7.	Analyze the thickness of cement concrete pavement using the method suggested by IRC (58-2002) and take the following data: modulus of elasticity of concrete = 3.105 kg/cm ² , modulus of rupture of concrete = 45 kg/cm ² , Poisson's ratio of concrete = 0.15, modulus of sub-grade reaction = 6.5 kg/cm ³ , design wheel load = 5100kg and radius of contact area = 16cm.	15M	CO3	L4
8(a)	Draw the cross section of flexible pavement and illustrate the function of each layer.	7M	CO2	L3
(b)	Discuss the various factors considered for mechanical stabilization. Under what circumstances the mechanical stabilization method is preferable?	8M	CO5	L2

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

S157-CLOUD COMPUTING
(CSE)

Time : 3 hours

Max. Marks : 75

PART-A

(Compulsory question)

Q.No	Questions	Marks	CO	BL
1(a)	Define Cloud Computing.	1M	CO1	L1
(b)	Write few words about Virtual Machine Directory.	1M	CO2	L1
(c)	How Map Reduce problem solves Scientific Applications?	1M	CO3	L1
(d)	Elucidate SLA in cloud computing.	1M	CO4	L1
(e)	What do you mean by Virtualization?	1M	CO5	L1
(f)	Is IaaS important in cloud computing?	2M	CO1	L1
(g)	List the types of lease supported by Haizea.	2M	CO2	L1
(h)	Define Aneka.	2M	CO3	L1
(i)	Outline any two available message queue implementations in Sky Net.	2M	CO4	L1
(j)	How elasticity is implemented in Amazon Web Services?	2M	CO5	L1

PART-B

(Answer any FOUR questions. All questions carry equal marks)

2(a)	Discuss different service Models of Cloud Computing.	7M	CO1	L2
(b)	Describe the seven step model of migration into the cloud.	8M	CO1	L2
3(a)	Summarize the features of Virtual Machine provisioning process.	7M	CO2	L2
(b)	Describe the process of VM management in Open Nebula.	8M	CO2	L2
4(a)	Explain the features of T-System Core Cloud Models.	7M	CO3	L2
(b)	Differentiate various Dynamic ICT Services.	8M	CO3	L2
5.	In what way Workflow Management Systems (WfMS) is organized?	15M	CO4	L1
6(a)	Identify the performance related issues in HPC Cloud.	7M	CO5	L1
(b)	Differentiate the performance of HPC systems with HPC Clouds.	8M	CO5	L2
7(a)	What are the challenges and risks involved in cloud computing?	8M	CO1	L1
(b)	List out different Migration services in the cloud.	7M	CO2	L1
8.	Illustrate the seven step model of migration into the cloud.	15M	CO1	L2

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

**S296-MANAGING INNOVATION AND ENTREPRENEURSHIP
(CSE)**

Time : 3 hours

Max. Marks : 75

PART-A

(Compulsory question)

Q.No	Questions	Marks	CO	BL
1(a)	List out the types of Innovation.	1M	CO1	L1
(b)	State the Various functions of entrepreneur.	1M	CO2	L1
(c)	Define the concept Joint venture.	1M	CO3	L1
(d)	Describe the term Business plan.	1M	CO4	L2
(e)	Elucidate the Marketing functions.	1M	CO5	L2
(f)	Mention the barriers of Creativity.	2M	CO1	L1
(g)	Define entrepreneurship.	2M	CO2	L1
(h)	State the types of business organizations.	2M	CO3	L1
(i)	Identify the role of Internet advertising.	2M	CO4	L1
(j)	How do you understand the term market segmentation?	2M	CO5	L1

PART-B

(Answer any FOUR questions. All questions carry equal marks)

2(a)	Discuss the seven sources of Innovation process.	7M	CO1	L2
(b)	Explain the role of Entrepreneurship in Economic development.	8M	CO1	L2
3.	Determine the growth and evaluation of entrepreneurship in India.	15M	CO2	L3
4(a)	Do the SWOT analysis helps to improve the business organization conditions in IT, Comment with an example?	7M	CO3	L1
(b)	Explain the sources of new idea generation and new entry opportunities.	8M	CO3	L2
5(a)	Describe the factors influencing ecommerce entrepreneurship and internet advertising.	7M	CO4	L2
(b)	What is SWOT analysis? Describe its advantages.	8M	CO4	L1
6(a)	Explain the 4 P's of Marketing Mix.	7M	CO5	L2
(b)	What factors decide the location of an Industrial unit and its maintenance?	8M	CO5	L1
7(a)	Illustrate the stages of Market research.	7M	CO5	L2
(b)	Discuss the common characteristics of successful entrepreneurs.	8M	CO2	L2
8(a)	Define Corporate creativity. Explain its importance in today's context.	7M	CO1	L1
(b)	Determine the concept of Marketing management.	8M	CO5	L2

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

**S329-OPERATIONS RESEARCH
(CSE & IT)**

Time : 3 hours

Max.Marks : 75

PART-A

(Compulsory question)

Q.No	Questions	Marks	CO	BL
1(a)	Define Basic feasible solution.	1M	CO1	L1
(b)	What is an unbalanced assignment problem?	1M	CO2	L1
(c)	Define a Game in game theory.	1M	CO3	L1
(d)	Explain different types of customer's behavior in Queueing Model.	1M	CO4	L2
(e)	Explain the Bellman's principal of optimality in dynamic programming.	1M	CO5	L2
(f)	Define slack and surplus variables as involved in LPP.	2M	CO1	L1
(g)	How far sensitivity analysis is relevant to assignment problem?	2M	CO2	L1
(h)	List out the characteristics of game theory.	2M	CO3	L2
(i)	Explain the terms involved in $(M/M/1):(\infty/FCFS)$.	2M	CO4	L2
(j)	Explain a dynamic programming problem.	2M	CO5	L2

PART-B

(Answer any FOUR questions. All questions carry equal marks)

2.	Discuss the significance and scope of OR in modern management.	15M	CO1	L3																																								
3.	Find an initial basic feasible solution to the following T.P. using Vogel's approximation method: <table><tr><th rowspan="2">Origin</th><th colspan="4">Destination</th><th rowspan="2">Availability</th></tr><tr><th>1</th><th>2</th><th>3</th><th>4</th></tr><tr><td>A</td><td>7</td><td>2</td><td>5</td><td>5</td><td>30</td></tr><tr><td>B</td><td>4</td><td>4</td><td>6</td><td>5</td><td>15</td></tr><tr><td>C</td><td>5</td><td>3</td><td>3</td><td>2</td><td>10</td></tr><tr><td>D</td><td>4</td><td>1</td><td>4</td><td>2</td><td>20</td></tr><tr><td>Requirement</td><td>20</td><td>25</td><td>15</td><td>15</td><td></td></tr></table>	Origin	Destination				Availability	1	2	3	4	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		15M	CO2	L1
Origin	Destination				Availability																																							
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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																																								
4(a)	Solve the following game by graphical method <table><tr><td></td><td>B₁</td><td>B₂</td><td>B₃</td></tr><tr><td>A₁</td><td>1</td><td>-3</td><td>7</td></tr><tr><td>A₂</td><td>2</td><td>4</td><td>-6</td></tr></table>		B ₁	B ₂	B ₃	A ₁	1	-3	7	A ₂	2	4	-6	8M	CO3	L3																												
	B ₁	B ₂	B ₃																																									
A ₁	1	-3	7																																									
A ₂	2	4	-6																																									
(b)	A contractor has to supply 10,000 bearings per day to an automobile manufacturer. He finds that, when he starts production run, he can produce 25,000 bearings per day. The cost of holding a bearing in stock for a year is Rs. 2 and the set up cost of a production run is Rs. 1,800. How frequently should production run be made?	7M	CO3	L3																																								

S329-OPERATIONS RESEARCH

5(a)	<p>The cost of a machine is Rs. 6,100 and its scrap value is Rs. 100. The maintenance costs found from experience are as follows".</p> <table><tr><th>Year</th><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th><th>8</th></tr><tr><td>Maintenance Cost (Rs.)</td><td>100</td><td>250</td><td>400</td><td>600</td><td>900</td><td>1,200</td><td>1,600</td><td>2,000</td></tr></table> <p>When should the machine be replaced?</p>	Year	1	2	3	4	5	6	7	8	Maintenance Cost (Rs.)	100	250	400	600	900	1,200	1,600	2,000	7M	CO4	L1				
Year	1	2	3	4	5	6	7	8																		
Maintenance Cost (Rs.)	100	250	400	600	900	1,200	1,600	2,000																		
(b)	Describe a queue model and steady state equations of $M/M/1$ queues.	8M	CO4	L2																						
6.	Explain the various applications of Dynamic programming problem.	15M	CO5	L2																						
7(a)	<p>A firm uses lathes, milling machines and grinding machines to produce two machine parts. The following table represents the machining times required for each part, the machining times available on different machines and the profit in each machine part.</p> <table><tr><th rowspan="2">Type of machine</th><th colspan="2">Machining time required for the machine part (minutes)</th><th rowspan="2">Maximum time available per week (minutes)</th></tr><tr><th>I</th><th>II</th></tr><tr><td>Lathe</td><td>12</td><td>6</td><td>3,000</td></tr><tr><td>Milling</td><td>4</td><td>10</td><td>2,000</td></tr><tr><td>Grinding</td><td>2</td><td>3</td><td>900</td></tr><tr><td>Profit /unit</td><td>Rs. 40/-</td><td>Rs. 100/-</td><td></td></tr></table> <p>Find the number of parts I and II to be manufactured per week to maximize the profit.</p>	Type of machine	Machining time required for the machine part (minutes)		Maximum time available per week (minutes)	I	II	Lathe	12	6	3,000	Milling	4	10	2,000	Grinding	2	3	900	Profit /unit	Rs. 40/-	Rs. 100/-		7M	CO1	L3
Type of machine	Machining time required for the machine part (minutes)		Maximum time available per week (minutes)																							
	I	II																								
Lathe	12	6	3,000																							
Milling	4	10	2,000																							
Grinding	2	3	900																							
Profit /unit	Rs. 40/-	Rs. 100/-																								
(b)	What is the objective of travelling salesman problem? How does its solution differ from the solution of the assignment problem?	8M	CO2	L2																						
8(a)	Explain clearly the various costs that are involved in inventory problems with suitable example. How they are inter-related?	7M	CO3	L2																						
(b)	<p>Use dynamic programming to solve the following L.P.P. :</p> <p>Maximize $Z = 8x_1 + 7x_2$</p> <p>subject to $2x_1 + x_2 \leq 8,$</p> <p>$5x_1 + 2x_2 \leq 15,$</p> <p>$x_1, x_2 \geq 0.$</p>	8M	CO5	L3																						

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

S375-SATELLITE COMMUNICATIONS
(ECE)

Time : 3 hours

Max. Marks : 75

PART-A

(Compulsory question)

Q.No	Questions	Marks	CO	BL
1(a)	Define the term Apogee.	1M	CO1	L1
(b)	What do you mean by the term "Station Keeping"?	1M	CO2	L1
(c)	Write the importance of Demand assigned TDMA.	1M	CO3	L1
(d)	Recognize the types of multiple access techniques.	1M	CO4	L1
(e)	Recall the acronym for MSAT.	1M	CO5	L1
(f)	List out the differences between the geosynchronous and geostationary orbits.	2M	CO1	L1
(g)	Mention the uplink and downlink frequency of a satellite operating on C-band.	2M	CO2	L1
(h)	Differentiate single access and multiple access.	2M	CO3	L1
(i)	Classify different types of Earth stations.	2M	CO4	L1
(j)	Identify at least two merits of Global Positioning System.	2M	CO5	L1

PART-B

(Answer any FOUR questions. All questions carry equal marks)

2(a)	How a satellite can be launched in geostationary orbit, show with aid of neat diagram?	7M	CO1	L1
(b)	Develop equations for look angles of an earth station with help of neat diagram.	8M	CO1	L3
3(a)	A parabolic antenna is circular in cross-section with a diameter 1.22m. If the maximum effective aperture equals 55% of physical aperture calculate gain of antenna in dB at 20GHz.	7M	CO2	L3
(b)	Summarize the functions of single conversion bent-pipe transponder.	8M	CO2	L2
4(a)	Describe the operation of SPADE system with diagram.	7M	CO3	L2
(b)	Mention the merits and demerits of CDMA.	8M	CO3	L1
5(a)	Illustrate the concepts of MATV with diagram.	7M	CO4	L2
(b)	Discuss external environment factors that affect radio wave propagation with respect to satellite communication.	8M	CO4	L2
6(a)	Illustrate the working principle of GPS with help of diagram.	7M	CO5	L2
(b)	Explain the different network configurations of VSAT.	8M	CO5	L2
7(a)	Estimate the period of a shuttle orbit when the altitude is 250 Km and the orbit is circular. Find also the linear velocity of the shuttle along its orbit. Given the radius of the earth is 6378.14 Km.	7M	CO1	L3
(b)	Mention the merits and demerits of satellite communications.	8M	CO1	L1
8(a)	Justify Why the up-link and down-link frequencies are not same.	7M	CO2	L3
(b)	Develop the relation between C/N and G/T ratio of an earth station.	8M	CO2	L3

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(AUTONOMOUS)

L.B. Reddy Nagar :: Mylavaram – 521 230 :: Krishna Dist.: A.P.

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

S140-AUTOMOBILE ELECTRONICS
(ECE)

Time : 3 hours

Max. Marks : 75

PART-A

(Compulsory question)

Q.No	Questions	Marks	CO	BL
1(a)	Define the Reserve capacity of a battery.	1M	CO1	L1
(b)	List the name of the starter based on semiconductors.	1M	CO2	L1
(c)	List the Types of Generators.	1M	CO3	L1
(d)	Describe the Adaptive cruise control technology.	1M	CO4	L1
(e)	Manifold Pressure Sensor is used in which location of an automobile system.	1M	CO5	L1
(f)	Explain Ampere hour capacity of a battery.	2M	CO1	L2
(g)	Discuss about Star-Delta (Y/D) starting systems.	2M	CO2	L2
(h)	Recall the main components of an alternator.	2M	CO3	L1
(i)	Define the EMC.	2M	CO4	L2
(j)	Tabulate the different classifications of sensors.	2M	CO5	L1

PART-B

(Answer any FOUR questions. All questions carry equal marks)

2(a)	Compare the Constant voltage, Constant current and Boost charging of a Battery.	7M	CO1	L2
(b)	Describe the different types of tests on batteries.	8M	CO1	L1
3(a)	Outline the requirements of Starter Motor.	7M	CO2	L2
(b)	Differentiate Heavy vehicle starters and integrated starters.	8M	CO2	L2
4(a)	Illustrate the characteristics of a DC generator.	7M	CO3	L2
(b)	Summarize the action of the voltage regulator.	8M	CO3	L2
5(a)	Describe the importance of predicting the Electromagnetic interference early in the design phase in an automobile vehicle.	7M	CO4	L2
(b)	Outline the Electronic dashboard instruments.	8M	CO4	L1
6.	Describe the working of Crankshaft position sensor with neat diagrams.	15M	CO5	L2
7(a)	Discuss the importance of Security and warning system in automobile vehicles.	7M	CO4	L2
(b)	Compare active and passive safety systems.	8M	CO4	L2
8(a)	Discuss the working of Mass Air Flow Sensor (MAF).	7M	CO5	L2
(b)	Explain the working principle and application of Solenoids.	8M	CO5	L2

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L.B. Reddy Nagar :: Mylavaram – 521 230 :: Krishna Dist.: A.P.

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)	Describe Frame tag.	1M	CO1	L1
(b)	List advantages of Java Beans.	1M	CO2	L1
(c)	Draw Life cycle of a Servlet.	1M	CO3	L1
(d)	Give an example for declaration of variable in JSP.	1M	CO4	L1
(e)	List the components of swing package.	1M	CO5	L1
(f)	Define XML Schema.	2M	CO1	L1
(g)	Describe Parsing XML Data.	2M	CO2	L1
(h)	Compare reading Servlet parameters and Initializing parameters.	2M	CO3	L1
(i)	Draw anatomy of a JSP page.	2M	CO4	L1
(j)	Define Action servlet component for struts.	2M	CO5	L1

PART-B

(Answer any FOUR questions. All questions carry equal marks)

2(a)	Explain various ways of creating Arrays in Java Script with example code.	7M	CO1	L2
(b)	Explain JavaScript Control Statements with Examples (i) if-else (ii) while (iii) switch Statement.	8M	CO1	L2
3(a)	Define Java bean object. Explain its advantages.	7M	CO2	L2
(b)	Write a java bean for adding two numbers.	8M	CO2	L3
4(a)	Define Session Tracking. Explain the Session tracking method.	7M	CO3	L3
(b)	Define Cookies. Explain "cookies" with code examples.	8M	CO3	L3
5(a)	Write a JSP Program example explaining the concept of conditional statements of JSP.	7M	CO4	L3
(b)	Explain the process of sharing data between JSP Pages.	8M	CO4	L3
6(a)	Describe MVC design patterns.	7M	CO5	L2
(b)	Describe struts main controller components.	8M	CO5	L2
7(a)	Illustrate HTML lists with suitable examples.	7M	CO1	L3
(b)	Write a HTML program with tables.	8M	CO1	L3
8.	Write Java Script code for Registration page fields validation.	15M	CO1	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 RCS.	1M	CO1	L1
(b)	List the applications of CW Radar.	1M	CO2	L1
(c)	What is a delay line canceller?	1M	CO3	L1
(d)	What is a Matched filter?	1M	CO4	L1
(e)	Define Radiation Pattern.	1M	CO5	L1
(f)	What are the peak power and duty cycle of radar whose average transmitter power is 200W, pulse width of 1 μ s and a pulse repetition frequency of 1000Hz?	2M	CO1	L1
(g)	What is FM-CW Altimeter?	2M	CO2	L1
(h)	Recall the change in the frequency of the target and source are moving close to each other with constant velocity.	2M	CO3	L1
(i)	What is the Rule of Thumb relation between the Bandwidth B and the pulse width τ in a matched filter receiver?	2M	CO4	L1
(j)	Name the expression for frequency response of a matched filter with nonwhite noise.	2M	CO5	L1

PART-B

(Answer any FOUR questions. All questions carry equal marks)

2(a)	What is Maximum Unambiguous Range? How is it related with pulse repetition rate?	7M	CO1	L1
(b)	Discuss about the simple form of the Radar equation.	8M	CO1	L2
3(a)	Explain how isolation between Transmitter and Receiver is obtained in CW radar.	7M	CO2	L2
(b)	Calculate the Doppler frequency of stationary CW radar transmitting at 6 MHz frequency when a moving target approaches the radar with a radial velocity of 100 Km/Hour.	8M	CO2	L3
4(a)	Compare the Tracking Techniques.	7M	CO3	L2
(b)	Discuss about Staggered PRF and blind speed. An MTI radar operates at 5 Ghz with a PRF of 100PPS. Find the three lowest blind speeds of this Radar.	8M	CO3	L2
5(a)	Summarize the operation of a conical scan Radar with block diagram and factors that to be considered for optimum squint angle.	7M	CO4	L2
(b)	What is meant by correlation? Explain cross relation with the help of neat block diagram.	8M	CO4	L1
6(a)	Explain how a circulator acts a duplexer in Radar receivers.	7M	CO5	L2
(b)	Explain the effect of Beam steering on the Beam width in a Phased array Radar and also give the expression for the beam width.	8M	CO5	L2
7(a)	What is the relation between bandwidth and the acceleration of the target with respect to radar?	7M	CO2	L1
(b)	Draw the block diagram of MTI radar using range gates and filters and explain each block.	8M	CO2	L2
8(a)	List the Applications, Advantages and limitations of Radar Antennas.	7M	CO1	L1
(b)	Illustrate the factors that influence the prediction of radar range.	8M	CO1	L2

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

S248-FACTS CONTROLLERS

(EEE)

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Time : 3 hours

Max. Marks : 75

PART-A

(Compulsory question)

Q.No	Questions	Marks	CO	BL
1(a)	What are the factors which limit loading capability?	1M	CO1	L1
(b)	What is the advantage of shunt compensation?	1M	CO1	L1
(c)	Draw the basic model of TCSC.	1M	CO1	L1
(d)	What is the importance of voltage regulator in power system?	1M	CO3	L1
(e)	What is meant by unified controller?	1M	CO2	L1
(f)	Write any two benefits of FACTS controllers.	2M	CO1	L1
(g)	State the salient features of STATCOM.	2M	CO1	L1
(h)	Write any two applications of TCSC.	2M	CO1	L1
(i)	Draw the characteristics of static voltage regulator.	2M	CO3	L1
(j)	What are the parameters of the transmission line can be controlled by UPFC?	2M	CO2	L1

PART-B

(Answer any FOUR questions. All questions carry equal marks)

2(a)	Name and explain different types of stability issues that limit transmission capability.	7M	CO1	L2
(b)	List out various FACTS controllers and explain.	8M	CO1	L2
3(a)	What are the objectives of shunt compensation and explain the midpoint voltage regulation?	7M	CO1	L2
(b)	Explain the working principle of TSC and TCR.	8M	CO1	L2
4(a)	Explain basic operation of Thyristor Switched series Capacitor with necessary waveforms.	7M	CO1	L2
(b)	Explain basic operation of GCSC with necessary waveforms.	8M	CO1	L2
5(a)	Discuss the steady state model of voltage regulator.	7M	CO3	L2
(b)	Draw the power circuit configuration of voltage regulator and explain.	8M	CO3	L2
6(a)	Draw the phasor diagram illustrating the concepts of UPFC.	7M	CO2	L2
(b)	Describe dependence of real and reactive power flow control in UPFC.	8M	CO2	L2
7(a)	Illustrate the objectives and applications of series compensation.	7M	CO1	L2
(b)	Discuss improvement of transient stability using series compensation on transmission systems.	8M	CO1	L2
8(a)	Explain the power flow considerations of a transmission interconnected systems.	8M	CO1	L2
(b)	How do you choose FACTS controllers for Power system applications?	7M	CO4	L2

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

**S373-ROBOTICS AND AUTOMATION
(EEE)**

Am 2

Time : 3 hours

Max. Marks : 75

PART-A

(Compulsory question)

Q.No	Questions	Marks	CO	BL
1(a)	Define automation.	1M	CO1	L1
(b)	List any two components of robots.	1M	CO1	L1
(c)	List any two robotic grippers.	1M	CO2	L1
(d)	What is the need of robot programming?	1M	CO3	L1
(e)	Write one application of the machine vision.	1M	CO4	L1
(f)	List two types of automation.	2M	CO1	L1
(g)	List six degrees of freedom for robotic arm.	2M	CO2	L1
(h)	What is the difference between pneumatic and hydraulic actuators?	2M	CO1	L1
(i)	Draw the hierarchical control structure of a robot microcomputer.	2M	CO3	L1
(j)	Write two applications of robots in manufacturing applications.	2M	CO4	L1

PART-B

(Answer any FOUR questions. All questions carry equal marks)

2(a)	List any four strategies of automation systems.	7M	CO1	L2
(b)	Explain the various types of equipment of automated material handling.	8M	CO1	L2
3(a)	Illustrate five types of robotic joints.	7M	CO2	L2
(b)	Explain the limited sequence control in robots.	8M	CO2	L2
4(a)	Differentiate different types of grippers .	7M	CO2	L2
(b)	Illustrate the control circuit of stepper motors.	8M	CO3	L2
5(a)	What are the differences between powered lead through and manual lead through?	7M	CO3	L1
(b)	Describe the various motion commands in robots.	8M	CO1	L2
6(a)	Explain the acoustics and optic sensors.	7M	CO4	L2
(b)	List the robotics application in non-manufacturing applications.	8M	CO4	L2
7(a)	Describe conveyor systems.	7M	CO1	L2
(b)	Explain various generations of programming languages.	8M	CO3	L2
8(a)	What is automated guided vehicle system?	7M	CO1	L1
(b)	What are the different considerations to be made for gripper selection?	8M	CO2	L2

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

S180-DATABASE MANAGEMENT SYSTEMS

(EEE)

Time : 3 hours

Max. Marks : 75

PART-A

(Compulsory question)

Q.No	Questions	Marks	CO	BL
1(a)	Define database schema.	1M	CO1	L1
(b)	Write syntax for inserting tuples into a table.	1M	CO2	L1
(c)	Define Functional Dependencies.	1M	CO3	L1
(d)	Define checkpoints.	1M	CO4	L1
(e)	What is indexing?	1M	CO5	L1
(f)	List any four disadvantages of File Processing System.	2M	CO1	L1
(g)	What is nested query? Give example.	2M	CO2	L1
(h)	Define 2 nd Normal form.	2M	CO3	L1
(i)	What is Serializability ?	2M	CO4	L1
(j)	Give any two examples for external data storage.	2M	CO5	L1

PART-B

(Answer any FOUR questions. All questions carry equal marks)

2(a)	Draw the ER diagram for the banking system.	8M	CO1	L1
(b)	List any five differences between file processing system and a DBMS.	7M	CO1	L1
3(a)	Explain the select and project operations as used in relational algebra.	7M	CO2	L2
(b)	What are null values? Are they supported in relational model? How do they affect the meaning of queries? Can primary key fields of a table contain null values?	8M	CO2	L2
4(a)	What are problems caused by redundancy? Explain.	7M	CO3	L2
(b)	Explain 3NF and BCNF with Examples.	8M	CO3	L2
5(a)	What is view serializability? In what way it is different from conflict serializability? Give an example.	8M	CO4	L2
(b)	There are schedules that are possible under the two phase locking protocols, but are not under the time stamping protocol. Justify.	8M	CO4	L3
6(a)	Write a short note on: (i) Optical disk (ii) Magnetic tapes.	7M	CO5	L2
(b)	What is the need for Indexing? Explain any three indexing techniques.	8M	CO5	L2
7.	Is indexing necessary for DBMS and Justify? Explain B+ Tree.	15M	CO5	L4
8(a)	Consider the following schema Student (stno, stname, stmarks, Deptno) Department (Deptno, deptname) (i) Create table for the above schema using possible constraints. (ii) Find the stno, stname whose marks more than 600. (iii) Find the stno, stmarks whose name starts with G (iv) Find student details who got highest marks.	8M	CO2	L3
(b)	Explain heap files and sorted files in DBMS.	7M	CO4	L2

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

**S230-ENERGY CONSERVATION AND AUDIT
(EEE)**

Time : 3 hours

Max. Marks : 75

PART-A

(Compulsory question)

Q.No	Questions	Marks	CO	BL
1(a)	What is the significance of an energy Auditing?	1M	CO1	L1
(b)	Mention the application of variable frequency drive.	1M	CO2	L1
(c)	List out the tools used in energy audit.	1M	CO2	L1
(d)	List out the advantages of series reactive power compensation.	1M	CO3	L1
(e)	Write any two energy conservation measures of pumps.	1M	CO5	L1
(f)	List the factors effecting energy efficiency of electric motors.	2M	CO2	L1
(g)	Write two merits of series and shunt reactive power compensation.	2M	CO3	L1
(h)	Illustrate the power triangle in power factor improvement.	2M	CO3	L1
(i)	Identify two factors that affect the efficient operation of lighting system.	2M	CO4	L1
(j)	Mention the power quality issues with HPSV lamp.	2M	CO5	L1

PART-B

(Answer any FOUR questions. All questions carry equal marks)

2(a)	Discuss the following tariff's (i) Flat demand rate tariff (ii) Block rate tariff (iii) Power factor tariff (iv) Peak load tariff.	7M	CO1	L2
(b)	Describe the HVAC facility case study for an industry.	8M	CO1	L2
3(a)	Distinguish between standard motors and energy efficient motors.	7M	CO2	L2
(b)	Summarize the necessity of speed control of motors in view of energy conservation.	8M	CO2	L2
4(a)	Compare shunt compensation and series reactive power compensation.	7M	CO3	L2
(b)	Describe the step by step procedure of load scheduling.	8M	CO3	L2
5(a)	List out the different energy conservation opportunities for lighting.	7M	CO4	L1
(b)	Describe the working of CFL bulbs and the purpose of electronic ballast.	8M	CO4	L2
6(a)	Summarize the different types of cycles used in combined heat and power (CHP) systems with neat sketches.	7M	CO2	L2
(b)	Outline the energy conservation measures in Cogeneration.	8M	CO5	L2
7(a)	Summarize the different flow control strategies used in pumps.	7M	CO2	L1
(b)	Discuss the effect of speed variations of the motor on the performance of pumps.	8M	CO2	L2
8(a)	Discuss the power quality issues in the energy efficient lighting schemes.	7M	CO4	L2
(b)	A centrifugal pump has a variable –frequency drive. The pump is running at 3500 rpm and delivering 1100 lit/m at 88 m height and consuming 26.5Kw.If the pump speed is reduced to 2900 r.p.m. Calculate the effect on flow rate,head and power required.	8M	CO3	L3

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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)	Define Embedded Systems.	1M	CO1	L1
(b)	Name the Architectures of Micro Controller/Processor.	1M	CO1	L1
(c)	List any two onboard communication interface.	1M	CO3	L1
(d)	Define Device Driver.	1M	CO2	L1
(e)	Compare OS and RTOS.	1M	CO2	L1
(f)	Recall the Non Operational Quality Attributes of an ES.	2M	CO1	L1
(g)	List out any four domain specific embedded systems.	2M	CO1	L1
(h)	Define the Interrupt Latency.	2M	CO3	L1
(i)	Define Scheduling.	2M	CO4	L1
(j)	List out the Characteristics of RTOS.	2M	CO5	L1

PART-B

(Answer any FOUR questions. All questions carry equal marks)

2(a)	Interpret the characteristics of Embedded systems.	7M	CO1	L2
(b)	Differentiate the Embedded systems Vs General Computing Systems.	8M	CO1	L2
3(a)	Discuss the core of the Embedded systems.	7M	CO2	L2
(b)	Illustrate the onboard Communication interfaces.	8M	CO2	L2
4(a)	Explain the Interrupt Service Routine with an example.	7M	CO3	L2
(b)	Illustrate the Sources of Interrupts.	8M	CO3	L2
5(a)	Discuss the remote procedure calls and sockets.	7M	CO4	L2
(b)	Interpret the message boxes and mail box with example.	8M	CO4	L2
6(a)	Interpret the functions of mail box in RTOS.	7M	CO5	L2
(b)	Illustrate the kernel objects in RTOS.	8M	CO5	L2
7(a)	Illustrate the external communication interfaces.	7M	CO2	L2
(b)	Explain the quality of attributes of embedded systems.	8M	CO2	L2
8(a)	Discuss the goal of OS services.	7M	CO5	L2
(b)	Write the scheduling mechanism in RTOS.	8M	CO5	L1

16 SEP 2020

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

**S370-RENEWABLE ENERGY SOURCES
(EIE)**

g n 2 ✓

Time : 3 hours

Max. Marks : 75

PART-A

(Compulsory question)

Q.No	Questions	Marks	CO	BL
1(a)	Define Zenith angle.	1M	CO1	L1
(b)	Define Gradient height in windmills.	1M	CO2	L1
(c)	Define Neap tide.	1M	CO3	L1
(d)	Define Peltier effect.	1M	CO4	L1
(e)	What is the function of fuel cell?	1M	CO5	L1
(f)	List out two application of solar heating.	2M	CO1	L1
(g)	Contrast HAWT and VAWT.	2M	CO2	L2
(h)	What is temperature gradient in OTEC Plant?	2M	CO3	L1
(i)	Define aerobic and anaerobic process.	2M	CO4	L1
(j)	List out the advantages of fuel cell.	2M	CO5	L1

PART-B

(Answer any FOUR questions. All questions carry equal marks)

2(a)	Compare active heating and passive solar heating.	7M	CO1	L2
(b)	Illustrate working principle of solar pond with neat sketch.	8M	CO1	L2
3(a)	Illustrate any one the geothermal energy harnessing techniques with neat sketch.	7M	CO2	L2
(b)	Explain Betz criteria in wind mills in detail.	8M	CO2	L2
4(a)	Explain the working principle of OTEC system.	7M	CO3	L2
(b)	Illustrate working principle of single basin tidal power plant with neat sketch.	8M	CO3	L2
5(a)	Classify Bio-gas digesters and explain batch type digester with neat sketch.	7M	CO4	L2
(b)	What are the sources of Biomass energy?	8M	CO4	L1
6(a)	Illustrate the working principle of Hydrogen fuel cell with sketch.	7M	CO5	L2
(b)	Explain the working principle of MHD generator with neat sketch.	8M	CO5	L2
7(a)	Derive an expression for the total power of wind stream.	7M	CO2	L2
(b)	Explain the working principle of sunshine recorder.	8M	CO1	L2
8(a)	Explain the working of hot dry rock thermal resource with neat sketch.	7M	CO2	L2
(b)	Classify Wave Energy Conversion systems Discuss any two of them in brief.	8M	CO3	L2

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**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

**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 microsystem with example.	1M	CO1	L1
(b)	What is scaling in geometry from the MEMS context?	1M	CO3	L1
(c)	What is Ion Implantation?	1M	CO4	L1
(d)	What is meant by micromachining?	1M	CO4	L1
(e)	What is a micro sensor?	1M	CO1	L1
(f)	Recall the scope of MEMS subject.	2M	CO1	L1
(g)	List any two views of a design engineers in scaling a system.	2M	CO3	L1
(h)	Define chemical vapour deposition.	2M	CO4	L1
(i)	List out the disadvantages of wet etching.	2M	CO4	L1
(j)	Label the diagram of micro pumps.	2M	CO5	L1

PART-B

(Answer any FOUR questions. All questions carry equal marks)

2(a)	List the various applications of MEMS and explain the importance in any two applications.	7M	CO1	L2
(b)	Distinguish between microsystems and microelectronics. Explain any two examples of microsystems.	8M	CO1	L3
3(a)	Define scaling and discuss about scaling in Electrostatic forces.	7M	CO3	L2
(b)	Describe about MEMS design considerations.	8M	CO3	L2
4(a)	Define etching. Etching is an essential sub-process in micromachining—Justify.	7M	CO4	L3
(b)	Illustrate on i) Deposition by Epitaxy ii) Photo resist removal.	8M	CO4	L3
5(a)	Distinguish between the anisotropic etching and isotropic etching.	7M	CO4	L2
(b)	Distinguish between bulk and surface micromachining processes with the help of RE consumption.	8M	CO4	L2
6(a)	Define micro sensor and describe about thermocouple.	7M	CO5	L2
(b)	Describe the working of micro gripper with neat sketch.	8M	CO5	L2
7(a)	Describe the working of micro gears with neat sketch.	7M	CO5	L2
(b)	Discuss about i) Thermal oxidation ii) CVD	8M	CO4	L2
8(a)	Explain about thin film deposition and its techniques.	7M	CO4	L2
(b)	Apply the scaling laws to find the torque required to turning a micro mirror with a reduction of 50% in the dimensions.	8M	CO2	L3

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L.B. Reddy Nagar :: Mylavaram - 521 230 :: Krishna Dist.:A.P.

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

**S270-INDUSTRIAL MANAGEMENT
(IT)**

Time : 3 hours

Max. Marks : 75

PART-A

(Compulsory question)

Q.No	Questions	Marks	CO	BL
1(a)	Define Authority.	1M	CO1	L1
(b)	What is a Plant layout?	1M	CO2	L1
(c)	What is meant by Statistical quality control?	1M	CO3	L1
(d)	Tell about promotion.	1M	CO4	L1
(e)	What is project management?	1M	CO5	L1
(f)	Tell about Importance of Scientific Management.	2M	CO1	L1
(g)	List out methods of production.	2M	CO2	L1
(h)	Tell about acceptance Sampling.	2M	CO3	L1
(i)	What is job evaluation?.	2M	CO4	L1
(j)	Tell about the role of critical paths in a network.	2M	CO5	L1

PART-B

(Answer any FOUR questions. All questions carry equal marks)

Answer any FOUR questions. All questions carry equal marks.

2(a)	Explain the principles of management as outlined by Henri Fayol.	7M	CO1	L2																																												
(b)	Explain why scientific management is still respected.	8M	CO1	L2																																												
3(a)	"For a good facility layout detailed analysis of material flow is essential" Discuss.	7M	CO2	L2																																												
(b)	Explain different types of plant layouts with advantages and disadvantages.	8M	CO2	L2																																												
4(a)	Demonstrate ABC analysis with a diagram and spell about its advantages.	7M	C03	L2																																												
(b)	Explain various types of control charts for attributes.	8M	C03	L2																																												
5(a)	What is HRM? What are its functions and objectives?	7M	C04	L2																																												
(b)	Explain different types of Job Evaluation techniques with advantages and limitations.	8M	C04	L1																																												
6(a)	Explain the procedure of project crashing in Network analysis.	7M	C05	L1																																												
(b)	Explain the procedure involved in CPM method.	8M	C05	L2																																												
7(a)	Explain the basic procedure involved in work measurement.	7M	C02	L2																																												
(b)	Explain different methods of production with advantages.	8M	C02	L2																																												
8.	<p>The following table lists the jobs of a network along with their time estimates. Construct the project network, estimate the completion time of the project and identify the critical paths.</p> <table border="1"> <tr> <th rowspan="2">Jobs</th> <th colspan="3">Duration (days)</th> </tr> <tr> <th>Optimistic</th> <th>Most likely</th> <th>Pessimistic</th> </tr> <tr><td>(1,2)</td><td>3</td><td>6</td><td>15</td></tr> <tr><td>(1,6)</td><td>2</td><td>5</td><td>14</td></tr> <tr><td>(2,3)</td><td>6</td><td>12</td><td>30</td></tr> <tr><td>(2,4)</td><td>2</td><td>5</td><td>8</td></tr> <tr><td>(3,5)</td><td>5</td><td>11</td><td>17</td></tr> <tr><td>(4,5)</td><td>3</td><td>6</td><td>15</td></tr> <tr><td>6,7)</td><td>3</td><td>9</td><td>27</td></tr> <tr><td>(5,8)</td><td>1</td><td>4</td><td>7</td></tr> <tr><td>(7,8)</td><td>4</td><td>19</td><td>28</td></tr> </table>		Jobs	Duration (days)			Optimistic	Most likely	Pessimistic	(1,2)	3	6	15	(1,6)	2	5	14	(2,3)	6	12	30	(2,4)	2	5	8	(3,5)	5	11	17	(4,5)	3	6	15	6,7)	3	9	27	(5,8)	1	4	7	(7,8)	4	19	28	15M	C05	L3
Jobs	Duration (days)																																															
	Optimistic	Most likely	Pessimistic																																													
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H.T.No

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**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

S326-OBJECT ORIENTED SOFTWARE ENGINEERING

(IT)

Time : 3 hours

Max. Marks : 75

PART-A

(Compulsory question)

Q.No	Questions	Marks	CO	BL
1(a)	Outline the different types of relationships used in UML.	1M	CO1	L1
(b)	Define traceability.	1M	CO2	L1
(c)	What is System Design Document (SDD)?	1M	CO3	L1
(d)	Define round- trip engineering.	1M	CO4	L1
(e)	What is system model?	1M	CO5	L1
(f)	Distinguish between schedule and schema.	2M	CO1	L1
(g)	List out the steps in risk management process.	2M	CO2	L1
(h)	What is an Event class, Events and Messages?	2M	CO3	L1
(i)	Define solution domain.	2M	CO4	L1
(j)	Define Work Packages.	2M	CO5	L1

PART-B

(Answer any FOUR questions. All questions carry equal marks)

2(a)	Demonstrate the activities involved in managing a software engineering project.	7M	CO1	L2
(b)	Illustrate in detail about software engineering concepts.	8M	CO1	L2
3(a)	Explain in detail about activities involved in requirements elicitation with the help of diagrams.	7M	CO2	L2
(b)	Compare the functional and non functional requirements.	8M	CO2	L2
4(a)	Discuss in detail about layers and partitions in system design concepts.	7M	CO3	L2
(b)	Demonstrate the system design activities from objects to subsystems.	8M	CO3	L2
5(a)	Outline any three selecting design patterns and components in Reuse Activities.	7M	CO4	L3
(b)	Illustrate in detail about Documenting Reuse.	8M	CO4	L2
6(a)	Describe in detail about activities involved in managing configuration management.	7M	CO5	L2
(b)	Explain in detail about Project Management Concepts.	8M	CO5	L2
7(a)	Distinguish between generalization and specialization in analysis concepts.	7M	CO1	L2
(b)	Discuss briefly about various modeling concepts.	8M	CO1	L2
8(a)	Design the class diagram and use case diagram of online reservation system and discuss in detail.	7M	CO2	L3
(b)	Compare Forward engineering and Reverse Engineering.	8M	CO4	L2

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

S353-PRODUCTION PLANNING AND CONTROL
(ME)

Time : 3 hours

Max. Marks : 75

PART-A

(Compulsory question)

Q.No	Questions	Marks	CO	BL
1(a)	What do you mean by PPC?	1M	CO1	L2
(b)	Define forecasting.	1M	CO2	L1
(c)	Mention at least two reasons for keeping an inventory.	1M	CO3	L1
(d)	What is MPS?	1M	CO4	L1
(e)	Identify any one of dispatching activity.	1M	CO5	L2
(f)	Depict the open loop production system.	2M	CO1	L2
(g)	State the weighted moving average method formula.	2M	CO2	L2
(h)	Define the terms: (i) Lead time (ii) Re-order point.	2M	CO3	L1
(i)	What are the significance of Gantt charts?	2M	CO4	L1
(j)	Identify the expediting aspects.	2M	CO5	L2

PART-B

(Answer any FOUR questions. All questions carry equal marks)

(Answer any FOUR questions. All questions carry equal marks)

2(a)	Classify various types of production systems with neat a sketch.	7M	CO1	L2																														
(b)	Explain the product life cycle.	8M	CO1	L2																														
3.	<p>Refer the following forecast data. Compute the (i) Error (ii) MAD (Mean Absolute Deviation) (iii) MSE (Mean Square Error) (iv) MFE (Mean Forecast Error) or Bias (v) MAPE (Mean Absolute Percentage Error) and (vi) Tracking Signal and (vii) Comment on this Forecasting Method for its validity.</p> <table border="1"> <tr> <td>Period</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> <td>9</td> </tr> <tr> <td>Actual Demand</td> <td>105</td> <td>96</td> <td>102</td> <td>97</td> <td>121</td> <td>118</td> <td>119</td> <td>123</td> <td>121</td> </tr> <tr> <td>Forecast Demand</td> <td>100</td> <td>100</td> <td>100</td> <td>100</td> <td>101</td> <td>102</td> <td>103</td> <td>104</td> <td>105</td> </tr> </table>	Period	1	2	3	4	5	6	7	8	9	Actual Demand	105	96	102	97	121	118	119	123	121	Forecast Demand	100	100	100	100	101	102	103	104	105	15M	CO2	L3
Period	1	2	3	4	5	6	7	8	9																									
Actual Demand	105	96	102	97	121	118	119	123	121																									
Forecast Demand	100	100	100	100	101	102	103	104	105																									
4(a)	What is meant by VED analysis? Distinguish between ABC analysis and VED analysis.	7M	CO3	L1																														
(b)	<p>The annual demand for an automobile component is 24000 units. The carrying cost is Rs. 0.40/unit/year, the ordering cost is Rs.20 per order and the storage cost is Rs.10/unit/year. Find the optimal values of the following:</p> <p>(i) Economic order quantity (ii) Maximum inventory (iii) Maximum storage quantity (iv) Cycle time.</p>	8M	CO3	L3																														

S353-PRODUCTION PLANNING AND CONTROL

5(a)	Illustrate the Schedule chart used for large sized products such as construction of a Railway coach.	7M	CO4	L3																											
(b)	<p>There are five jobs which are to be processed on work centre in a sheet metal shop The processing times are given below:</p> <table><tr><td>Job</td><td>A</td><td>B</td><td>C</td><td>D</td><td>E</td></tr><tr><td>Processing time (days)</td><td>4</td><td>17</td><td>14</td><td>9</td><td>11</td></tr></table> <p>Determine the following:</p> <p>(i) Optimal sequence using SPT rule</p> <p>(ii) Total completion time</p> <p>(iii) Mean Flow Time</p>	Job	A	B	C	D	E	Processing time (days)	4	17	14	9	11	8M	CO4	L3															
Job	A	B	C	D	E																										
Processing time (days)	4	17	14	9	11																										
6(a)	Discuss about various types of aggregate planning strategies.	7M	CO5	L1																											
(b)	Illustrate the various duties of a dispatcher.	8M	CO5	L1																											
7(a)	Distinguish between centralized and decentralized PPC.	7M	CO1	L1																											
(b)	<p>The demand for the particular product is given for the last 8 periods. Compute the exponential smoothed forecast for the periods taking $\alpha = 0.1$ and 0.3. Which of these forecasts is better?</p> <table><tr><td>Period</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td></tr><tr><td>Demand</td><td>10</td><td>18</td><td>29</td><td>15</td><td>30</td><td>12</td><td>16</td><td>8</td></tr></table>	Period	1	2	3	4	5	6	7	8	Demand	10	18	29	15	30	12	16	8	8M	CO2	L3									
Period	1	2	3	4	5	6	7	8																							
Demand	10	18	29	15	30	12	16	8																							
8.	<p>There are 5 jobs each of which must go through machines A, B and C in the order ABC. The processing times in hrs are given below.</p> <table><tr><td rowspan="2">Job</td><td colspan="3">Processing time(hrs)</td></tr><tr><td>M/C A</td><td>M/C B</td><td>M/C C</td></tr><tr><td>1</td><td>10</td><td>6</td><td>9</td></tr><tr><td>2</td><td>11</td><td>4</td><td>5</td></tr><tr><td>3</td><td>8</td><td>5</td><td>4</td></tr><tr><td>4</td><td>7</td><td>3</td><td>6</td></tr><tr><td>5</td><td>6</td><td>2</td><td>8</td></tr></table> <p>Determine the best sequence elapsed total time and idle times on three machines.</p>	Job	Processing time(hrs)			M/C A	M/C B	M/C C	1	10	6	9	2	11	4	5	3	8	5	4	4	7	3	6	5	6	2	8	15M	CO4	L3
Job	Processing time(hrs)																														
	M/C A	M/C B	M/C C																												
1	10	6	9																												
2	11	4	5																												
3	8	5	4																												
4	7	3	6																												
5	6	2	8																												

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

S409-TOTAL QUALITY MANAGEMENT

(ME)

Time : 3 hours

Max. Marks : 75

PART-A

(Compulsory question)

Q.No	Questions	Marks	CO	BL
1(a)	Define Total Quality Management.	1M	CO1	L1
(b)	Define the term external customer.	1M	CO2	L1
(c)	Draw any two symbols used in flow charts.	1M	CO3	L1
(d)	What are various types of FMEA?	1M	CO4	L1
(e)	What is the purpose of an ISO 9000 quality system?	1M	CO5	L1
(f)	Write any two dimensions of quality.	2M	CO1	L1
(g)	Draw the customer satisfaction model.	2M	CO2	L1
(h)	What is the aim of process capability?	2M	CO3	L1
(i)	List out the benefits of QFD.	2M	CO4	L1
(j)	Who is responsible to organize internal audit?	2M	CO5	L1

PART-B

(Answer any FOUR questions. All questions carry equal marks)

2(a)	What are various obstacles for implementing TQM in organizations?	7M	CO1	L2
(b)	What are various costs of quality and explain them?	8M	CO1	L2
3(a)	Explain Herzberg's two factor theory of motivation.	7M	CO2	L2
(b)	For an automobile industry suggest the appropriate method of collecting customer feedback.	8M	CO2	L3
4(a)	Describe the process of constructing "cause and effect" diagram.	7M	CO3	L2
(b)	Differentiate between affinity diagram and interrelationship diagram.	8M	CO3	L2
5(a)	What is benchmarking? Explain the process.	7M	CO4	L2
(b)	Describe the steps required for implementing Total Productive maintenance.	8M	CO4	L2
6(a)	Describe the requirements of ISO 9001.	7M	CO5	L2
(b)	Describe the steps required for implementing a quality management system.	8M	CO5	L2
7(a)	Explain the stages in PDCA cycle.	7M	CO1	L2
(b)	Describe various dimensions of a quality.	8M	CO2	L2
8(a)	Illustrate the various elements in Juran Trilogy.	7M	CO3	L2
(b)	Define QFD. List out the elements of QFD.	8M	CO4	L1

**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

**S343-POWER PALNT ENGINEERING
(ME)**

Time : 3 hours

Max. Marks : 75

**PART-A
(Compulsory question)**

Q.No	Questions	Marks	CO	BL
1(a)	Classify the coal.	1M	CO1	L1
(b)	State the function of reservoir in hydro power plant.	1M	CO2	L1
(c)	What is the function of control rod in a nuclear reactor?	1M	CO3	L1
(d)	List the direct energy conversion devices.	1M	CO4	L1
(e)	What are the pollutants generated from thermal power plants?	1M	CO5	L1
(f)	Differentiate between in-plant and out-plant handling of coal.	2M	CO1	L1
(g)	List the components of a gas turbine plant.	2M	CO2	L1
(h)	State the classification of hydro power plants.	2M	CO3	L1
(i)	What is the difference between fuel cell and PV cell?	2M	CO4	L1
(j)	Define the term diversity factor and demand factor.	2M	CO5	L1

PART-B

(Answer any FOUR questions. All questions carry equal marks)

2(a)	Illustrate the working principle of Electrostatic precipitator.	7M	CO1	L2
(b)	Explicate the working of a central system of coal handling.	8M	CO1	L2
3(a)	Elaborate the working principle of water cooling system of diesel power plant with a neat sketch.	7M	CO2	L2
(b)	State the advantages and disadvantages of gas turbine power plants over thermal power plants.	8M	CO2	L1
4(a)	Enumerate the factors to be considered while selecting the site for hydroelectric power plant.	7M	CO3	L1
(b)	Discuss different methods for nuclear waste disposal.	8M	CO3	L2
5(a)	Demonstrate the power generation from double basin tidal system.	7M	CO4	L2
(b)	Explain the working principle of a photo-voltaic cell with the help of a sketch.	8M	CO4	L2
6(a)	What do you mean by power plant economics? List the various costs involved in economics of a power plant.	7M	CO5	L1
(b)	A thermal power plant of 210 MW capacity has the maximum load of 160 MW. Its annual load factor is 0.6. The coal consumption is 1 kg per kWh of energy generated and the cost of coal is Rs 450.00 per tonne. Calculate (i) The annual revenue earned if energy is sold at Rs 1 per kWh and (ii) The capacity factor of the plant.	8M	CO5	L3
7(a)	Describe spreading type of overfeed stokers and discuss their merits and demerits.	7M	CO1	L2
(b)	Elaborate the simple arrangement of combined cycle.	8M	CO2	L2
8(a)	Elucidate essential components of nuclear reactor.	7M	CO3	L2
(b)	Explicate the working of flat plate solar collector with a neat diagram.	8M	CO4	L2

**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

**S436-MODREN CONSTRUCTION SYSTEMS AND TECHNIQUES
(CE)**

Time : 3 hours

Max. Marks : 75

PART-A

(Compulsory question)

Q.No	Questions	Marks	CO	BL
1(a)	Distinguish between burnt bricks and un burnt bricks.	1M	CO1	L4
(b)	Mention the stages of construction of drilled pier.	1M	CO2	L2
(c)	List out methods of post tensioning system as per IS 1343-1980.	1M	CO3	L1
(d)	List out any four paving equipments used for road construction.	1M	CO4	L2
(e)	Mention the importance of bridges according to Thomas B.Macaulay.	1M	CO5	L2
(f)	Mention the impotence of building materials in terms of cost of construction.	2M	CO1	L2
(g)	Mention the purpose of dewatering.	2M	CO2	L2
(h)	Mention the applications of pre-tensioning system and post-tensioning systems with example.	2M	CO3	L2
(i)	Describe importance of sheep-foot roller.	2M	CO4	L2
(j)	List out common component of a typical bridge.	2M	CO5	L1

PART-B

(Answer any FOUR questions. All questions carry equal marks)

2.	Lit out the different types of roofs and explain with neat sketches.	15M	CO1	L1
3(a)	Describe the advantages and disadvantages of drilled pier.	7M	CO2	L2
(b)	Classifications of pile foundations.	8M	CO2	L4
4(a)	Distinguish between pre stressing and post stressing systems.	8M	CO3	L4
(b)	Describe the principles of post tensioning system with neat sketch.	7M	CO3	L2
5(a)	Describe the purpose of earth moving equipment and explain about Backhoe Loader and motor grade.	7M	CO4	L2
(b)	Describe the purpose of material handling equipment and explain about dumpers and cranes.	8M	CO4	L2
6(a)	Differentiate fixed bearings and expansion bearings.	8M	CO5	L4
(b)	Describe briefly erection of steel girder bridges.	7M	CO5	L2
7.	Describe the forces acting on well foundation.	15M	CO2	L2
8(a)	Describe the basic concepts of prestressing system.	7M	CO3	L2
(b)	Describe the advantages of prestressing concrete system.	8M	CO3	L2

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

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

**S111-ADVANCED STRUCTURAL DESIGN
(CE)**

Time : 3 hours

Max. Marks : 75

PART-A
(Compulsory question)

Q.No.	Questions	Marks	CO	BL
1(a)	State the necessity of shear key in retaining walls.	1M	CO1	L1
(b)	Define the term "shallow bin".	1M	CO2	L1
(c)	Write the use of horizontal stiffener in a plate girder.	1M	CO3	L2
(d)	Locate the position of crane hook for maximum vertical load on gantry girder.	1M	CO4	L2
(e)	Mention the minimum section modulus for stiffening angle in water tanks.	1M	CO5	L1
(f)	State the procedural steps to calculate the width of counter fort in retaining walls.	2M	CO1	L1
(g)	State the assumptions in Janssen's theory.	2M	CO2	L1
(h)	Give the condition for providing the horizontal stiffeners in plate girder.	2M	CO3	L1
(i)	Furnish the additional load to be added, as per IS code, for horizontal force transferred to the rails in gantry girder.	2M	CO4	L2
(j)	Mention the minimum thickness of plates for suspended bottom in a water tank with 6 lakhs liters capacity.	2M	CO5	L2

PART-B

(Answer any FOUR questions. All questions carry equal marks)

2.	Design heel slab and counterfort for a counterfort retaining wall to retain 5.8 m height earth. Take unit weight of backfill is 18 kN/m ³ SBC= 180kN/m ² , angle of internal friction is 30° and center to center distance of counterforts is 3.2 m. Assume coefficient of friction between soil and concrete is 0.45. Use M25 grade concrete and Fe 415 steel.	15M	CO1	L6
3.	A silo with internal diameter 5.5 m, height of cylindrical portion 18 m and central opening with 0.5 m is to be built to store wheat. Design the silo using M20 and Fe415. Unit weight of wheat = 8.5 kN/m ³ . Angle of internal friction = 28° Angle of wall friction = 21° (while filling) and 17° (while emptying), Pressure ratio = 0.5 while filling, Use Janssen's theory for pressure calculation.	15M	CO2	L6

S111-ADVANCED STRUCTURAL DESIGN

4.	Design a welded plate girder of span 24 m to carry a superimposed load of 35 kN/m. Avoid use of bearing and intermediate stiffeners. Use E250 steel.	15M	CO3	L6
5.	Determine the maximum moment and shear force and check whether ISMB 600 with ISMC 300 on compression flange is adequate to carry moment. Details of gantry girder: Span of girder 6.5 m, Span of crane girder 16 m, Crane capacity 250 kN, Self weight of crane girder 280 kN, Self weight of trolley 50 kN, Minimum hook appear 1 m, Distance between wheels 3.5 m, Self weight of rails 0.3 kN/m, Self weight of crane girder 200 kN.	15M	CO4	L5
6.	Design circular elevated water tank (excluding staging) for a capacity of 200000 liters. The height of the tank bottom above the ground level is 8.7 m. the tank is supported over 8 columns.	15M	CO5	L6
7.	Design a circular bunker to store 25 tonnes of coal. Take density of coal 9 kN/m ³ and angle of repose 30°. Use M25 grade concrete and Fe 415 steel.	15M	CO2	L6
8.	Design stem for a counterfort retaining wall, if the height of wall above the ground level is 6 m, SBC= 200 kN/m ² , angle of internal friction is 30° and unit weight of backfill is 18 kN/m ³ . Keep spacing of counterforts as 3.5 m. coefficient of friction between soil and concrete is 0.5. Use M25 grade concrete and Fe 415 steel.	15M	CO3	L6

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

**S263-HVDC TRANSMISSION
(EEE)**

Time : 3 hours

Max. Marks : 75

PART-A

(Compulsory question)

Q.No	Questions	Marks	CO	BL
1(a)	What is the need of DC reactor in HVDC?	1M	CO1	L1
(b)	List the applications of MTDC systems.	1M	CO1	L1
(c)	What is meant by firing angle control?	1M	CO4	L2
(d)	What are the drawbacks in the operation of weak AC systems?	1M	CO3	L1
(e)	Define Telephone Harmonic Form Factor.	1M	CO3	L1
(f)	List any two HVDC projects in India.	2M	CO1	L1
(g)	What is current margin? Why it is important?	2M	CO4	L1
(h)	How is power reversal achieved in HVDC link?	2M	CO1	L2
(i)	What is misfire? Mention its causes and effects.	2M	CO3	L1
(j)	What is the effect of unbalanced voltages in the HVDC system?	2M	CO1	L2

PART-B

(Answer any FOUR questions. All questions carry equal marks)

2(a)	Summarize the advantages and disadvantages of a HVDC Transmission system.	7M	CO1	L2
(b)	Compare HVAC and HVDC Transmission for Economics of operation, Stability limit and reliability.	8M	CO2	L2
3(a)	Describe the assumptions made while studying the properties of converter circuits.	7M	CO4	L4
(b)	Analyze three and four valve conduction mode of converter using the Graetz circuit.	8M	CO4	L2
4(a)	Describe the Individual Phase Control and Equidistant Pulse Control schemes of firing angle control.	7M	CO4	L2
(b)	Describe with block diagram constant current and extinction angle controllers of converter.	8M	CO4	L2
5(a)	Discuss the faults due to commutation failure in inverter and short circuit in a converter station.	7M	CO3	L2
(b)	With a neat diagram discuss the over-current protection scheme in HVDC converters.	8M	CO3	L2
6(a)	Summarize the causes of generation of non-characteristic harmonics in HVDC converters and troubles caused by such harmonics.	7M	CO3	L2
(b)	Discuss the criteria for design of DC filters.	8M	CO5	L2
7(a)	Discuss the causes of over voltages in a converter station. Mention the basic principles of over voltage protection.	7M	CO3	L2
(b)	Draw the schematic diagram of a typical HVDC converter station and explain the function of each component.	8M	CO1	L2
8(a)	Enumerate the relative merits and demerits of constant current control and constant voltage control of HVDC link.	7M	CO4	L2
(b)	Describe different types of faults in HVDC link.	8M	CO3	L2