IV B.Tech. I Semester Supplementary Examinations July 2021

CAD/CAM

(Mechanical Engineering)

Max. Marks: 70　　　　　　　　　　　　　　　　　　　　　Time: 3 Hours

Answer *all five* units by choosing one question from each unit (5 x 14 = 70 Marks)

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			Marks	CO	Blooms Level

UNIT–I

			Marks	CO
1.	a)	Differentiate among job, batch, mass and continuous flow productions.	8M	CO1
	b)	Explain the various types of database structure employed for graphics modeling.	6M	CO1

OR

2.		The vertices of a triangle are situated at points (15, 10), (25, 35) and (5, 45). Find the coordinates of the vertices if the triangle is rotated by 30^0 in counter-clockwise direction about its centroid.	14M	CO1

UNIT–II

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3.		Explain different types of geometric modeling methods used in CAD. Give a comparative application of each of them.	14M	CO2

OR

4.	a)	Derive the parametric equation of Hermite cubic spline curve.	8M	CO2
	b)	Differentiate between CSG and B-rep.	6M	CO2

UNIT–III

5.	a)	Differentiate between open loop and closed loop NC control system.	7M	CO3
	b)	Describe the features of machining center.	7M	CO3

OR

6. Write a manual part program for profile milling of the job as shown in figure. All dimensions are in mm. Assume suitable tools and cutting parameter for the manufacturing of the job.
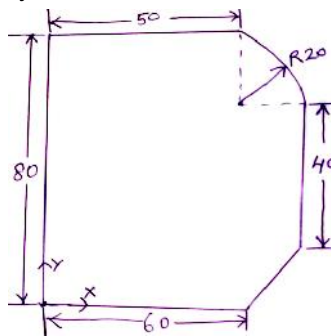
　　　　　　　　　　　　　　　　　　　　　　　　　　　　14M　CO3

UNIT–IV

7.	a)	Explain the Opitz coding system used in group technology	7M	CO4
	b)	Describe the steps involved in production flow analysis with one example.	7M	CO4

OR

8.	a)	Compare retrieval type and generative type computer aided processes planning.	7M	CO4
	b)	Explain the different types of computer control systems in FMS.	7M	CO4

UNIT–V

9.	a)	Give a brief description of capacity planning in a manufacturing organization.	5M	CO5
	b)	Explain various types of coordinate measuring machine.	9M	CO5

OR

10.	a)	Explain the methods in which CAQC is interlinked with other functions in a manufacturing organization.	9M	CO5
	b)	Describe the benefits of CIM.	5M	CO5

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IV B.Tech. I Semester Supplementary Examinations July 2021
Disaster Management
(Common to All Branches)

Max. Marks: 70   Time: 3 Hours
Answer *all five* units by choosing one question from each unit (5 x 14 = 70 Marks)
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			Marks	CO	Blooms Level
		UNIT–I			
1.	a)	Demonstrate natural disaster and man-made disaster, what are the effects of disasters on environmental health facilities and services.	7M	CO1	L2
	b)	Explicit an account on different approaches to disaster management and relation with human ecology.	7M	CO1	L2
		OR			
2.	a)	Summarize the concept of first responder with special reference to the role of the government in first response.	7M	CO1	L1
	b)	Discuss various methods for rescuing affected persons in a disaster situation.	7M	CO1	L1
		UNIT–II			
3.	a)	State epicenter and focus? Create with a neat diagram? Based on depth how many types of earthquake are classified.	8M	CO2	L1
	b)	Explore plate tectonic movements, describe landslides.	6M	CO2	L1
		OR			
4.	a)	Explicit a note on man-made landslides. State what are the mitigation measures at the time of land-slides?	7M	CO2	L5
	b)	Explore various environmental Impacts of Volcanic Eruptions	7M	CO2	L5
		UNIT–III			
5.	a)	Describe a flow chart of planetary and extra planetary hazard.	6M	CO3	L3
	b)	Elucidate the consequences of the phenomenon of drought? Summarize briefly.	8M	CO3	L3
		OR			
6.	a)	Distinguish the difference between natural disaster and man-made disaster.	7M	CO3	L2
	b)	Examine the role of corporate social responsibility as an emerging avenue in managing disasters.	7M	CO3	L2
		UNIT–IV			
7.	a)	What are the important steps in relief distribution and summarize the different types of damages that occur due to disasters.	8M	CO4	L4
	b)	Illustrate the floods hazards of India in the past years.	6M	CO4	L4
		OR			
8.	a)	Explicit a note on floods and discuss its types and causes.	6M	CO4	L1
	b)	Summarize briefly the pattern of global population growth in recent years which is causing alarm to environmental experts.	8M	CO4	L1
		UNIT–V			
9.	a)	List out some guidelines for achieving sustainable development.	6M	CO5	L5
	b)	Explicit the methods to predict natural disasters and discuss the role of technology in disaster management.	8M	CO5	L5
		OR			
10.	a)	Summarize the different types of damage reports. Identify the different types of rehabilitation.	8M	CO5	L3
	b)	Discuss the role of technology in disaster management.	6M	CO5	L3

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IV B.Tech. I Semester Supplementary Examinations July 2021
Human Resource Management
(Common to All Branches)

Max. Marks: 70   Time: 3 Hours
Answer *all five* units by choosing one question from each unit (5 x 14 = 70 Marks)
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			Marks	CO	Blooms Level
		UNIT–I			
1.	a)	What is HRM? Explain its nature and Scope.	7M	1,2	1
	b)	Explain HRM Operational Functions.	7M	1,2	2
		OR			
2.	a)	What is Ethics? Enumerate the need of ethical aspects of HRM	7M	1, 2	4
	b)	Differentiate personnel management and HRM	7M	1, 2	5
		UNIT–II			
3.	a)	Elicit the role of Human Resource Information System in an organization.	7M	6, 7 8	2
	b)	What are the different factors affecting HRP.	7M	6, 7, 8	4
		OR			
4.	a)	Define Job Description. What items are typically included in the Job Description?	7M	6, 7, 8	1
	b)	Describe Job Description and its importance.	7M	6, 7, 8	2
		UNIT–III			
5.	a)	What is recruiting? Explain process and factors affecting recruitment.	7M	1, 4	4
	b)	Write about the importance of internal recruitment methods.	7M	1, 4	2
		OR			
6.	a)	Explain the emerging trends in Employee Selection Process.	7M	1, 4	2
	b)	Define placement and orientation role in HRM	7M	1, 4	1
		UNIT–IV			
7.	a)	List and briefly explain each of the steps in the Training Process.	7M	3, 4,5	1
	b)	Explain different methods of training.	7M	3, 4, 5	2
		OR			
8.	a)	Define the process of Career stages and Development	7M	3, 4,5	1
	b)	List the advantages and disadvantages of training process	7M	3, 4, 5	1
		UNIT–V			
9.	a)	Define compensation? Explain various components of pay structures in India.	7M	3, 4, 5	1
	b)	List out various types of compensation process	7M	3, 4, 5,	1
		OR			
10.	a)	Write a note on Industrial Relations objectives, need and parties involved	7M	3, 4, 5	3
	b)	Define the need of Performance Appraisal	7M	3, 4, 5	1

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Code: 7G571

IV B.Tech. I Semester Supplementary Examinations July 2021

Operations Research

(Mechanical Engineering)

Max. Marks: 70　　　　　　　　　　　　　　　　　　　　　　Time: 3 Hours

Answer *all five* units by choosing one question from each unit (5 x 14 = 70 Marks)

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		Marks	CO	Blooms Level

1. The Reddy Mikks Company owns a small paint factory and produces both interior and exterior house paints for wholesale distribution. The basic raw materials – A and B are used to manufacture the paints. The maximum availability of A is 6 tons a day; that of B is 8 tons a day. The daily requirements of the raw materials per ton of interior and exterior paints are summarized in table below:

	Tons of Raw Material / ton of paint		Maximum availability (tons)
	Exterior	Interior	
Raw Material – A	1	2	6
Raw Material – B	2	1	8

A market survey has established that the daily demand for interior paint cannot exceed that of exterior paint by more than one ton. The survey also shows that the maximum demand for interior paint is limited to 2 tons daily. The wholesale price per ton in Rs.3,000/- for exterior paint and Rs.2,000/- for interior paint. Formulate the problem as a Linear Programming Problem (LPP) and find the optimum solution.　　14M　CO1　K3

OR

2. Solve the following LPP by Simplex method:

Maximize:　　$Z = 2x_1 - 2x_2 + 3x_3$

Subject to:　　$2x_1 + 3x_2 - x_3 \le 30$

　　　　　$3x_1 - 2x_2 + x_3 \le 24$

　　　　　$x_1 - 4x_2 - 6x_3 \le 2$

and　　　　$x_1, x_2, x_3 \ge 0$　　　　　　　　　　14M　CO1　K3

3. A company has 4 factories F_1, F_2, F_3 and F_4 manufacturing the same product. Production and raw material costs differ from factory to factory and are given in the following table. Transportation cost from factories to sales depots S_1, S_2, and S_3 are also given. The last two columns in the table give the sale price and total requirement at each depot. The production capacity of each factory is given in last row. Determine the most profitable production and distribution schedule and the corresponding profit. The surplus production should be taken to yield zero profit.

		F_1	F_2	F_3	F_4		
Production cost/unit (Rs.)		15	18	14	13	Sale price / unit (Rs.)	Requirement (units)
Raw material cost / unit (Rs.)		10	9	12	9		
Transportation cost/unit (Rs.)	S_1	3	9	5	5	34	80
	S_2	1	7	4	5	32	120
	S_3	5	8	3	6	31	150
Capacity (units)		10	150	10	100	---	

14M　CO2　K3

OR

4. A salesman starting at city – P has to visit cities Q, R and S before returning to P. The distance between pairs of cities in kilometers is given below. Determine the route which enables the salesman to visit all the cities at minimum total distance travelled.

		TO			
		P	Q	R	S
FROM	P	0	150	250	200
	Q	220	0	450	550
	R	400	300	0	250
	S	200	260	380	0

14M CO2 K3

UNIT–III

5. A manufacturer is offered two machines A and B. Machine A is priced at Rs.5,000/- and running costs are estimated at Rs.800/- for each of the first five years, increasing by Rs.200/ year in the 6th and subsequent years. Machine B, which has the same capacity as A, costs Rs.2,500/- but will have running costs of Rs.200/ year for six years increasing by Rs.200/ year thereafter. If money is worth 10% per year, which machine should be purchased?

14M CO3 K3

OR

6. A and B play a game in which each has three notes, a 5 rupee note, a 10 rupee note, and a 20 rupee note. Each selects a note without the knowledge of the others choice. If the sum of the notes is an odd amount, A wins B'S note; if the sum is even, B wins A's note. Find the best strategies for each player and the value of the game.

14M CO3 K3

UNIT–IV

7. a) Vehicles arrive at a filling station with one pump in a Poisson fashion with an average of 15 vehicles /hour. The time taken for filling the tank is distributed exponentially with an average of 2.4 minutes. Determine:
    i.   The average number of units in the system.
    ii. Probability that a vehicle arriving has to wait for servicing.
    iii. Probability that the number of units in the system is 2.
    iv. Average time spent by a vehicle in the system.

8M CO4 K3

    b) What is meant by jockeying, reneging and balking?

6M CO4 K2

OR

8. a) Explain the phases of simulation.

7M CO4 K2

    b) How will you apply Simulation technique for solving Queuing problem?

7M CO4 K3

UNIT–V

9. A manufacturing company purchase 9000 parts of a machine for its annual requirements, ordering one month's usage at a time. Each part costs Rs. 20. The ordering cost per order is Rs.15 and the carrying charges are 15% of the average inventory per year. You have been assigned to suggest a more economical purchasing policy for the company. What advice would you offer and how much would it save the company per year?

14M CO5 K3

OR

10. Solve by Dynamic programming the following LPP:

Maximize: $z = 4x_1 + 14x_2$
Subject to: $2x_1 + 7x_2 \quad 21$
              $7x_1 + 2x_2 \quad 21$
and $x_1, x_2 \quad 0$

14M CO5 K3

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