VII Sem (R18)

06/01/2022 (FN)

Q.P. Code: 1801701 | **SET - 1**

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B. Tech. VII Semester (R18) Regular Examinations of January – 2022

SUB: Engineering Economics, Estimation & Costing (CE)

Time: 3 Hours **Max. Marks: 70**

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT – I

1. (a) Write the detailed specification of foundation concrete and reinforced concrete **7M**
   (b) What are the different types of specifications? Explain? **7M**

(OR)

2. (a) Explain the various methods of approximate estimates **7M**
   (b) Write about detailed estimate? **7M**

UNIT – II

3. (a) Work out the unit rate for 20mm thick plastering on walls in CM (1:5) **7M**
   (b) Calculate the rate per cu.m for 1st class brick work in (1:6) in superstructure **7M**

(OR)

4. (a) Analyze the rate per unit item for 20mm thick cement concrete of (1:4:8) **7M**
   (b) Calculate the rate per cu.m for ½ brick wall(10 cm) thick with cement mortar (1:3) in ground floor **7M**

UNIT – III

5. Estimate the quantities of following item of works from the Double room building with a verandah shown in Fig. 4-18 below **14M**
   i) Earthwork in Excavation in foundation, ii) Lime concrete in Foundation, c) 1" class brickwork in superstructure in lime mortar.

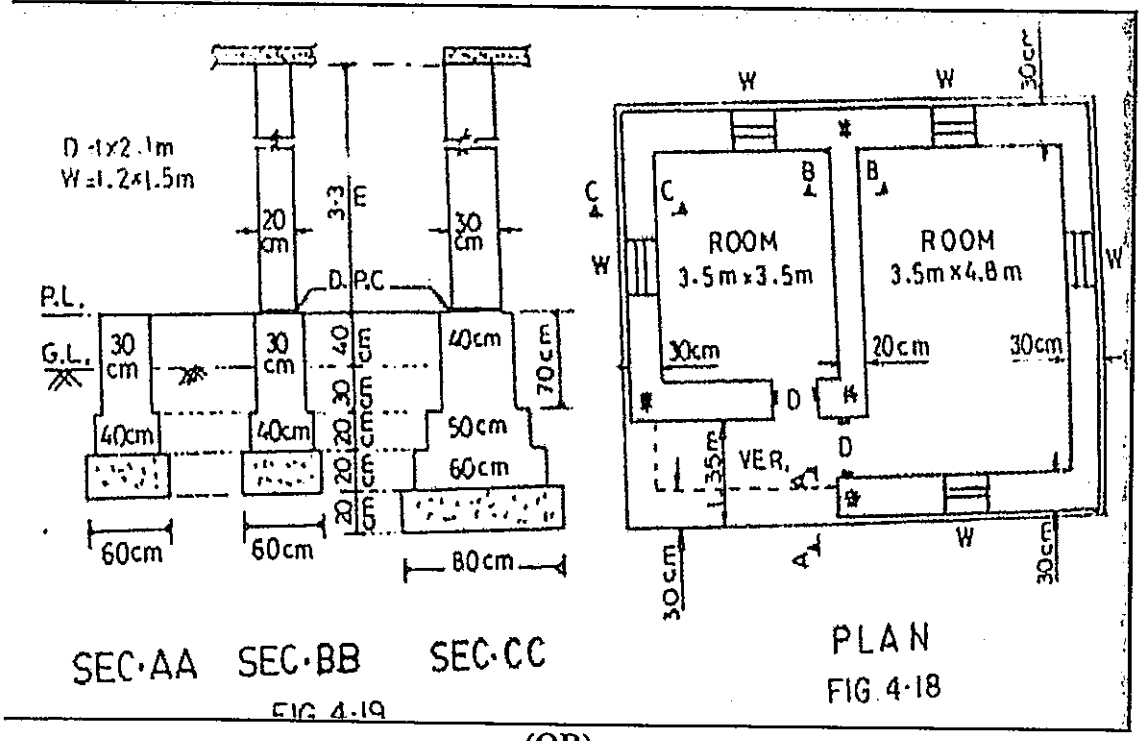
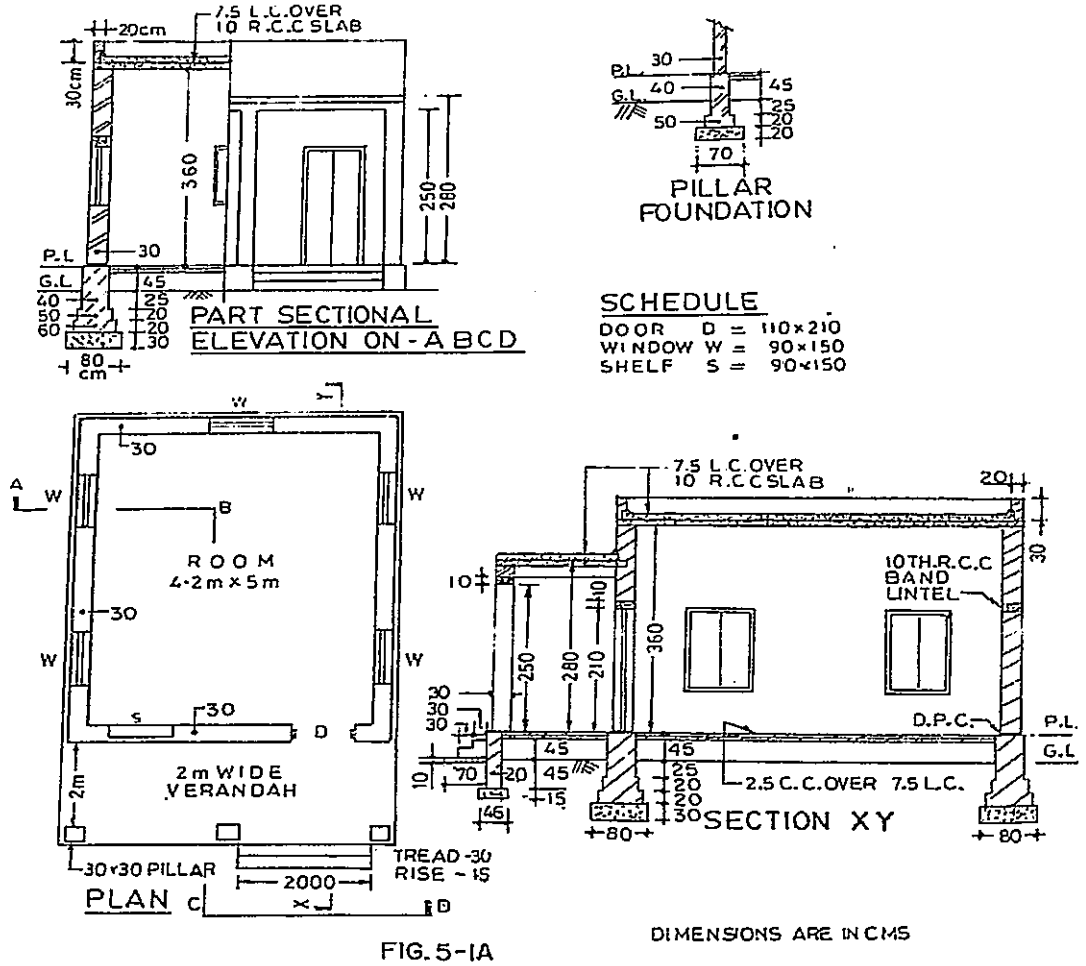


FIG 4-19 FIG 4-18

(OR)

6. Estimate the quantities of following item of works from the Single room Building with a verandah shown in Fig. 5-1A below i) Earthwork in Excavation in foundation, ii) Lime concrete in foundation, iii) 1* class brickwork in Foundation and Plinth inl:6 cement mortar. **14M**



DIMENSIONS ARE IN CMS

FIG. 5-1A

UNIT – IV

7. Estimate the quantity of steel required for the structural element shown in figure below. Also prepare a schedule of bars. **14M**

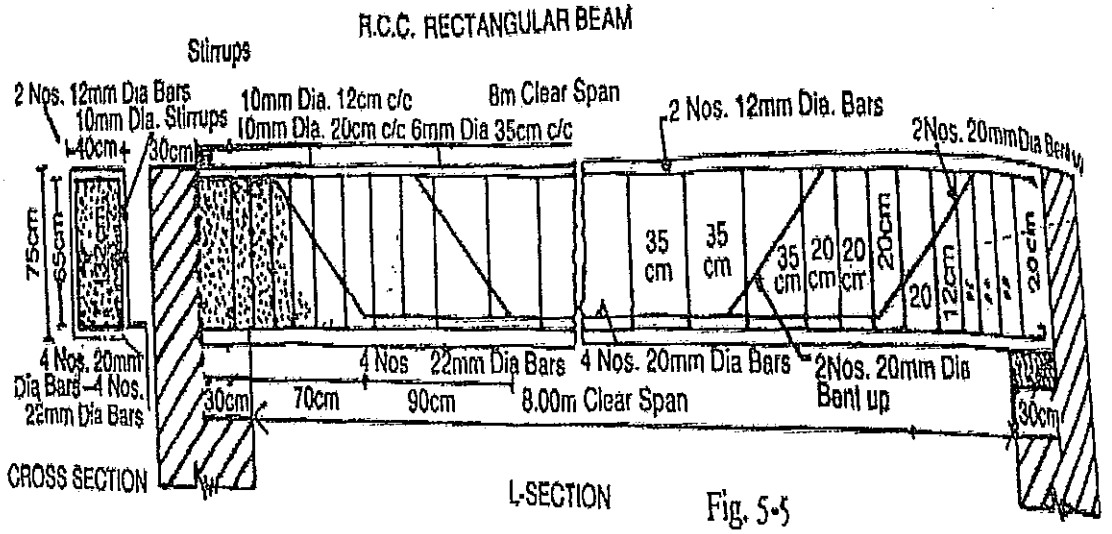
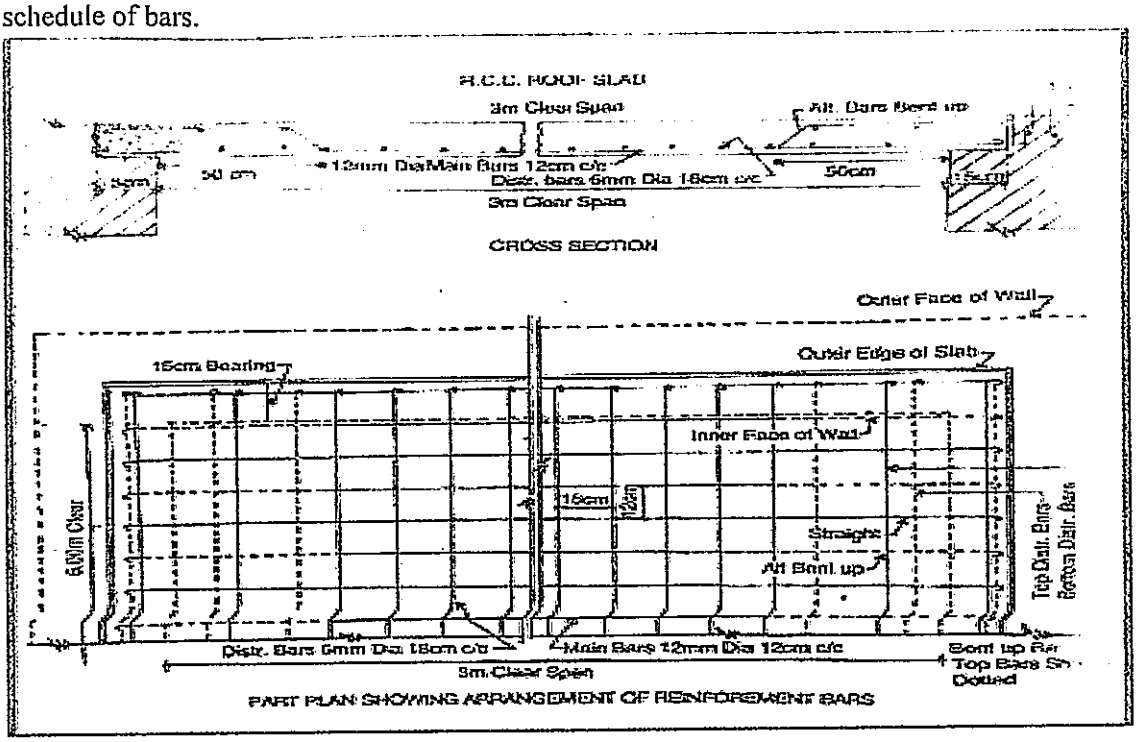


Fig. 5-5

(OR)

8. Estimate the quantity of steel required for R.C.C.roof slab shown in figure below.Also prepare a schedule of bars. **14M**



UNIT-V

9. (a) Write a short note on Arbitration and Tenders? **6M**

   (b) List the contract documents and explain them? **8M**

(OR)

10. (a) Write a short note on factors affecting valuation of building **6M**

    (b) Explain the various methods of valuation to the land property and building property **8M**

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K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B. Tech. VII Semester (R18) Regular Examinations of January – 2022

SUB: Project Management (EEE)

Time: 3 Hours **Max. Marks: 70**

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT – I

1. (a) Bring out the need for project management. 7M
   (b) Discuss the various steps of feasibility study. 7M

(OR)

2. (a) List and explain the principles of project management. 7M
   (b) Why resource scheduling is an important task? 7M

UNIT – II

3. What are the components of project cost? Discuss them in detail. 14M

(OR)

4. A company has an investment opportunity costing Rs. 40,000 with following expected net cash flow (i.e. after taxes and before depreciation): 14M

Year	1	2	3	4	5	6	7	8	9	10
Net cash flow (Rs.)	7000	7000	7000	7000	7000	8000	10000	15000	10000	4000
Discounting factor @ 10%	0.909	0.826	0.751	0.683	0.621	0.564	0.513	0.467	0.424	0.386

Using 10% as the cost of capital, determine the following:
(i) NPV @ 10% (ii) Profitability index

UNIT – III

5. Write a short note on: 14M
   (i) Value engineering (ii) Quality concepts

(OR)

6. (a) What checks should be implemented into the project management to ensure quality? 7M
   (b) Explain the technique of Monte Carlo simulation. 7M

UNIT – IV

7. (a) Distinguish between PERT and CPM 7M
   (b) Describe the process of crashing a network. 7M

(OR)

8. The following table gives the activities of construction project and duration: 14M

Activity	1-2	1-3	2-3	2-4	3-4	4-5
Duration (days)	20	25	10	12	6	10

(i) Draw the network for the project (ii) Find the critical path and project duration

UNIT-V

9. Explain about the process of project execution and control. 14M

(OR)

10. What are the essential requirements of project management software? Explain. 14M

Q.P. Code: 1803701 | SET - 1

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B. Tech. VII Semester (R18) Regular Examinations of January – 2022

SUB: CAD / CAM (ME)

Time: 3 Hours **Max. Marks: 70**

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT – I

1. Discuss Computer aided design process with the help of a block diagram? 14M

(OR)

2. (a) Give the details of various display devices that are used for displaying graphics information? 7M
   (b) List out the various types of storage devices used in computers? 7M

UNIT – II

3. (a) Explain the importance of clipping. Give the details of the methods used for line clipping? 7M
   (b) The two endpoints of a line segment have coordinates (1,3) and (3,6) if it is scaled to twice its present size, write the transformation matrix and the coordinates of the new endpoints. 7M

(OR)

4. What is meant by Transformation and Explain 3-D Transformations with suitable examples? 14M

UNIT – III

5. (a) Discuss the concept of B- Rep with an example? 7M
   (b) Explain surface generation in detail? 7M

(OR)

6. Describe the method of defining the Bezier curve and give its advantages in CAD applications? 14M

UNIT – IV

7. (a) Explain the Opitz coding system generally used in group technology? 7M
   (b) What is an FMS? Explain in detail the basic components of FMS? 7M

(OR)

8. Discuss the applications of robots in manufacturing and material handling? 14M

UNIT-V

9. (a) Discuss Inputs and outputs of MRP? 7M
   (b) Give a brief description of capacity planning in a manufacturing organization? 7M

(OR)

10. What is computer aided process planning? Discuss variant process planning in detail with an example? 14M

Q.P. Code: 1804701

SET - 1

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B. Tech. VII Semester (R18) Regular Examinations of January – 2022

SUB: Internet of Things (ECE)

Time: 3 Hours **Max. Marks: 70**

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT – I

1.	(a)	What are the factors which limit the full exploitation of the IoT? Explain.	6M
	(b)	What hardware required for IoT application development? Explain.	8M
		(OR)	
2.	(a)	Illustrate the outline of IoT architecture and then explain the same.	8M
	(b)	What are the challenges in IoT? Elaborate.	6M

UNIT – II

3.	(a)	Give IPv4 addressing format and then explain the functionality of each field of it.	9M
	(b)	What is the difference between TCP and UDP communication? Elaborate.	5M
		(OR)	
4.	(a)	Briefly introduce Internet and Network topologies.	7M
	(b)	List out relative protocols of TCP/IP layers and then explain the same.	7M

UNIT – III

5.	(a)	Draw and explain the architecture of MSP 432 processor.	10M
	(b)	Brief out the booster packs of MSP 432 processor.	4M
		(OR)	
6.	(a)	List out the features of CC3220 SF Launchpad.	4M
	(b)	Draw and explain the block diagram of CC3220 SF launchpad.	10M

UNIT – IV

7.	(a)	Explore different cloud storage services.	7M
	(b)	What is data processing in cloud computing? Explain.	7M
		(OR)	
8.	(a)	Discuss Cloud Data processing and frame format.	7M
	(b)	Brief out the features of Temboo cloud.	7M

UNIT-V

9.	(a)	Explore IoT applications in home management.	7M
	(b)	Describe the IoT application in Infrastructures.	7M
		(OR)	
10.	(a)	Explain the application of IoT in healthcare.	8M
	(b)	Why is IPv6 preferred over IPv4 for IOT implementation? Explain.	6M

Q.P. Code: 1805701 | SET - 1

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B. Tech. VII Semester (R18) Regular Examinations of January – 2022

SUB: Machine Learning (CSE)

Time: 3 Hours **Max. Marks: 70**

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT – I

1.	(a)	Define Machine Learning?explain with specific examples?	7M
	(b)	How will you design a Learning system? Explain with examples?	7M
		(OR)	
2.	(a)	Define Concept Learning and Explain the task of concept of learning?	7M
	(b)	Explain about Linear Models of regressions?	7M
		UNIT – II	
3.	(a)	Illustrate the impact of over-fitting in a typical application of decision tree learning.	7M
	(b)	Discuss Hypothesis space search in decision tree learning	7M
		(OR)	
4.	(a)	Define Decision tree learning.List and explain appropriate problems for decision tree learning	7M
	(b)	Explain about the basic decision tree algorithm?	7M
		UNIT – III	
5.	(a)	Define Dimensionality Reduction.Explain about Principal Component Analysis?	7M
	(b)	Explain about multivariate feature selection approach with example?	7M
		(OR)	
6.	(a)	Discuss about K nearest neighbor model with example?	7M
	(b)	Differentiate Forward Search and Backward Search?	7M
		UNIT – IV	
7.	(a)	List and Explain features of Bayesian Learning Methods	7M
	(b)	Explain Maximum Likelihood and least-squared Hypothesis?	7M
		(OR)	
8.	(a)	Describe Brute-Force map learning algorithm?	7M
	(b)	Discuss Naïve Bayes Classifier with an example?	7M
		UNIT-V	
9.	(a)	What does support vector machine do?	7M
	(b)	Differentiate K-means clustering and K-medoids clustering?	7M
		(OR)	
10.	(a)	Explain about Bagging and Boosting?	7M
	(b)	Explain about clustering and its types with examples?	7M

11/4/2022

Q.P. Code: 1801703 | **SET - 1**

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B. Tech. VII Semester (R18) Regular Examinations of January – 2022

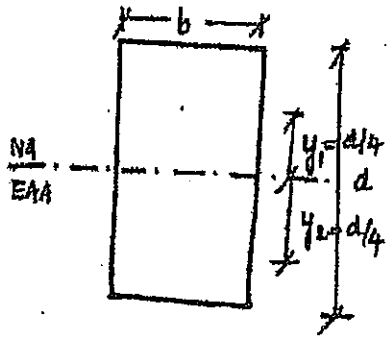
SUB: Design of Steel Structures (CE)

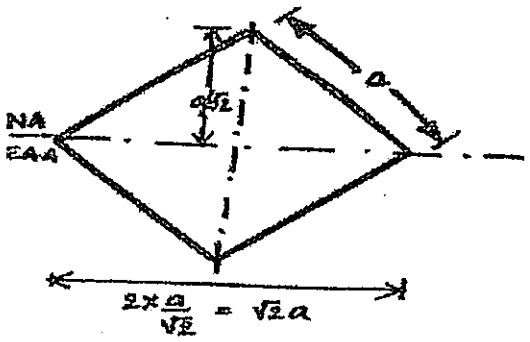
Time: 3 Hours **Max. Marks: 70**

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT – I

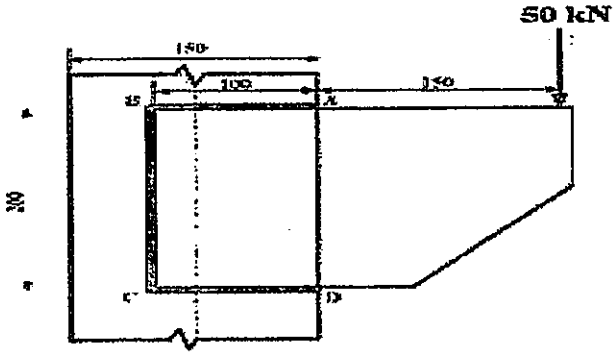
1. Find the shape factor for the types of geometrical shapes mentioned below:
fig(i). fig(ii).





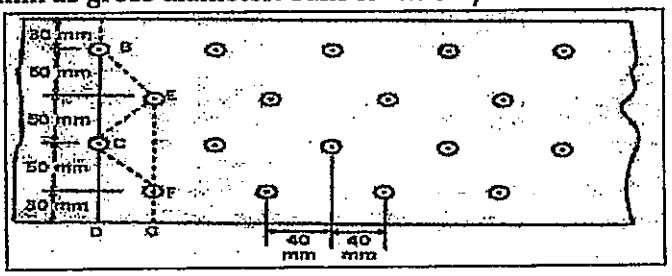
(OR)

2. A bracket is subjected to a load of 50 kN and is connected to a stanchion by welding as shown in Fig. Find the size of the weld so that the load can be carried safely. 14M



UNIT – II

3. Find the strength of the 12 mm thick plate shown in Fig. All the holes are 21.5 mm as gross diameter. Take ft=150 N/mm². 14M



(OR)

4. The tension member of a roof truss consist of two unequal angles 70 x 45 x 8 with the longer legs connected by 16 mm diameter rivets. Find the safe tension for the member, the angles being one on either side of the gusset plate. 14M

UNIT – III

5. A rolled steel joist on a simply supported span of 6 m is loaded by uniformly distributed vertical load of 25 kN I m and horizontal load of 1.5 kN 1 m. The end supports do not permit any twisting of the section. Design the beam. 14M

(OR)

6. A roof truss purlin shown in Figure 6.14 carries a uniformly distributed vertical load (including wind load) of 4.5 kN / m of span. The top flange of the purlin may be assumed to be laterally supported throughout, and the load is assumed to pass through the shear centre of the section. The spacing of the roof trusses is 4.2 m. Design a suitable channel section for the purlin ((fy = 250 MPa). 14M

UNIT – IV

7. Design a bolted end plate connection between an ISMB 400 beam and an ISHB 200 @ 40 kg/m column so as to transfer a hogging factored bending moment of 150 KN-m and a vertical factored shear of 150 KN. Use HSFG bolts of diameter 22 mm. 14M

(OR)

8. Design a seat connection for a factored beam end reaction of 110KN. The beam reaction is ISMB 250 @ 365.9 N/m connected to the flange of column section ISHB 200@ 365.9 N/m using bolted connections. Steel Grade Fe410 and bolts are of grade 4.6 14M

UNIT-V

9. An ISA 90 x 90 x 8 used as tension member is connected to a 10 mm gusset plate by fillet weld of size 5 mm. The design strength of the member is 300 kN. Calculate the length of the weld. 14M

(OR)

10. A single angle section 90X60X10 is connected with gusset plate with 7 bolts of 20mm diameter in one line at pitch of 50 mm and edge distance of 30 mm. What is the design tensile strength of the section for rupture of net section? (Assume the section is connected with longer leg and gauge distance = 50 mm) 14M

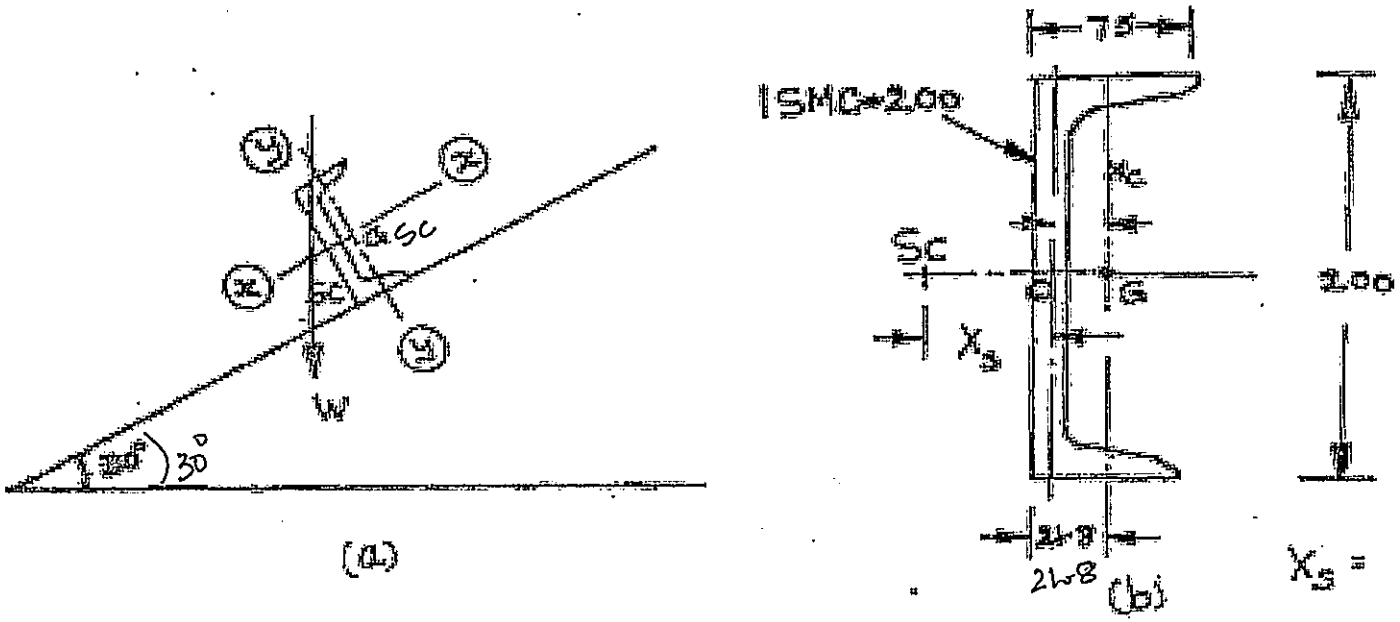


Figure 6.14

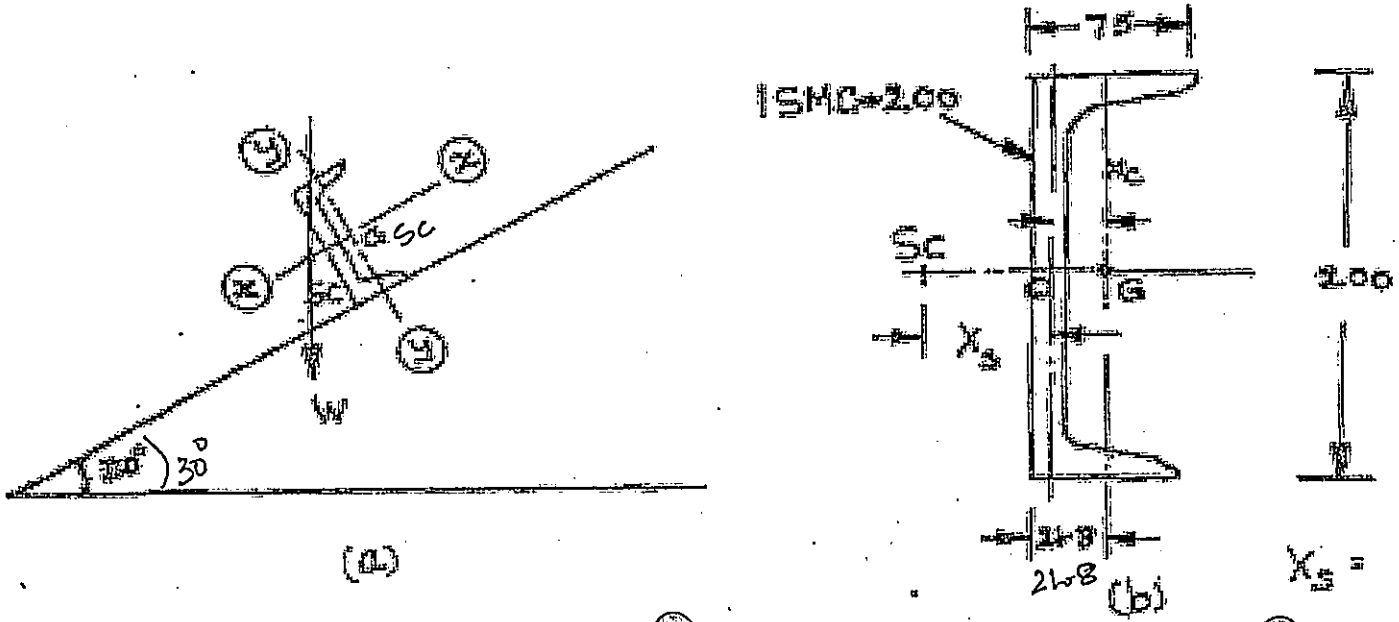


Figure 6.14

Q.P. Code: 1802704 | SET - 1

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B. Tech. VII Semester (R18) Regular Examinations of January – 2022

SUB: Power Quality (EEE)

Time: 3 Hours **Max. Marks: 70**

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT – I

1.	(a)	Explain the power Quality Evaluation Procedure?	7M
	(b)	Analyze the objectives of IEEE and IEC standards?	7M
		(OR)	
2.	(a)	Discuss about any four power quality issues, indicating more attention in power system.	7M
	(b)	Describe the CBEMA and ITI curve	7M

UNIT – II

3.		Analyze the different methods for estimating voltage sag severity due to the disturbance in the power system	14M
		(OR)	
4.	(a)	Describe the methodology of estimating voltage sag performance	7M
	(b)	What are the different voltage sag mitigation techniques? Explain the principle of operation of DVR used for sag mitigation	7M

UNIT – III

5.		Explain how commercial and industrial loads are responsible for harmonic distortion	14M
		(OR)	
6.	(a)	Explain the waveform distortion due to different types of nonlinear loads	7M
	(b)	Write short notes on the following (i) Harmonic indices (ii)Inter harmonics	7M

UNIT – IV

7.	(a)	Analyze the role and application of expert systems in power quality monitoring	7M
	(b)	Discuss briefly about the different features of harmonic analyzer	7M
		(OR)	
8.	(a)	Explain in detail about the flicker meter	7M
	(b)	Design and explain about power quality disturbance analyzer	7M

UNIT-V

9.		Explain the following (i) Solid state circuit limiter (ii) Solid state breaker	14M
		(OR)	
10.		Explain in detail about how UPQC is employed to improve the power quality?	14M

Q.P. Code: 1803703 | SET - 1

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B. Tech. VII Semester (R18) Regular Examinations of January – 2022

SUB: Quality Engineering & Management (ME)

Time: 3 Hours **Max. Marks: 70**

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT – I

1. (a) Define Quality. Discuss the role of quality Engineering in product design and production process. 10M
   (b) Differentiate Cost of Quality and Value of Quality. 4M

(OR)

2. (a) Briefly explain the concept of Total Quality Management. What are its benefits? 10M
   (b) Differentiate between Quality of conformance and Quality of performance. 4M

UNIT – II

3. (a) Discuss the steps in constructing $\overline{X}$ and R charts. 10M
   (b) What do you understand by process capability? 4M

(OR)

4. (a) In a double sampling plan of N=1000, $n_1 = 32$, $n_1 = 38$, $c_1 = 0$, $c_2 = 2$. Determine: (i) the probability of accepting a 2% defective lot. (ii) the Average Outgoing Quality (AOQ). 10M
   (b) How does the acceptance sampling by variables differ from that by attributes? 4M

UNIT – III

5. Differentiate the approaches of parameter design and tolerance design used by Genichi Taguchi to improve the quality of a product or process. 14M

(OR)

6. (a) Discuss different methods of Tolerance Design using the loss function. 10M
   (b) Differentiate Off-line Quality Control and Online Quality Control. 4M

UNIT – IV

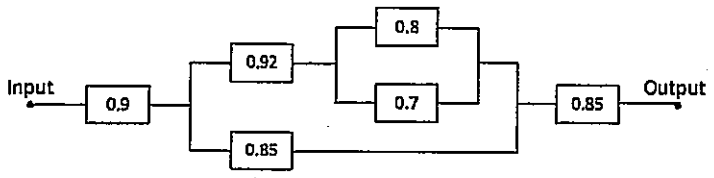
7. (a) What is House of Quality in QFD? Explain various stages in it. 10M
   (b) Write a short note on Quality Circles. 4M

(OR)

8. (a) Define and explain the following terms. 10M
   (i) Reliability (ii) Failure density function
   (iii) Hazard (Failure) Rate function (iv) Mean Time To Failure (MTTF)
   (v) Mean Time Between Failures (MTBF)
   (b) The mean time to failure of a particular type of component is 800 hours. What is the probability that a similar component will fail in an operating time of: (i) 200 hours, (ii) 400 hours, (iii) 800 hours, and (iv) 1000 hours. 4M

UNIT-V

9. (a) Discuss various costs associated with economics of reliability engineering. 10M
   (b) Estimate the reliability of the following system: 4M



(OR)

10. (a) What is availability in relation to system reliability? Discuss different types of availability. 10M
    (b) A parallel system is composed of ten (10) identical independent components. If the system reliability is to be 0.95, how poor can the components be? 4M

Q.P. Code: 1804706 | SET - 1

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B. Tech. VII Semester (R18) Regular Examinations of January – 2022

SUB: CMOS Design (ECE)

Time: 3 Hours **Max. Marks: 70**

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT – I

1.	(a)	Define Threshold Voltage. Express threshold voltage and discuss dependency of VT on various parameters.	7M
	(b)	Explain the DC noise margin of CMOS logic.	7M
		(OR)	
2.	(a)	Design and implement CMOS full adder circuit.	7M
	(b)	Design and implement AOI and OIA using CMOS.	7M

UNIT – II

3.	(a)	Realize CMOS complex logic gates using the Boolean function Z=A(D+C)+BE.	7M
	(b)	Explain voltage boots trapping with an example.	7M
		(OR)	
4.	(a)	Discuss the transient analysis of CMOS Transmission gate by replacing it with resistor equivalent circuit. Design an EX-OR gate using Transmission gate Logic.	7M
	(b)	Design an EX-OR gate using Transmission gate Logic.	7M

UNIT – III

5.	(a)	Draw the D latch by using CMOS logic and explain its operation in detail.	7M
	(b)	Write short notes SR latch in sequential MOS logic	7M
		(OR)	
6.	(a)	Explain the concept of charge storage and charge leakage associated with pass transistor logic.	7M
	(b)	Write short notes JK latch in sequential MOS logic	7M

UNIT – IV

7.	(a)	Draw the D latch by using CMOS logic and explain its operation in detail.	7M
	(b)	Write short notes on SR latch in sequential MOS logic.	7M
		(OR)	
8.	(a)	Write notes on pseudo NMOS logic gate.	7M
	(b)	Write notes on Ferro electric Random Access Memory (FRAM).	7M

UNIT-V

9.	(a)	Mention different types of RAM cells. Draw and explain the operation of a single bit dynamic RAM cell.	7M
	(b)	Compare the performance of SRAM and DRAM.	7M
		(OR)	
10.	(a)	Explain NOR flash memory.	7M
	(b)	Write about dynamic pass transistor.	7M

Q.P. Code: 1805705 | SET - 1

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B. Tech. VII Semester (R18) Regular Examinations of January – 2022

SUB: Cloud Computing (CSE)

Time: 3 Hours **Max. Marks: 70**

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT – I

1.	(a)	What is cloud computing?	4M
	(b)	Explain in detail about Grid Computing and Cluster Computing	10M
		(OR)	
2.		Write about Four Cloud Deployment Models in detail.	14M
		UNIT – II	
3.	(a)	How to manage the cloud infrastructure? Explain	7M
	(b)	Explain the evolution of cloud applications	7M
		(OR)	
4.		Discuss in detail about Network Connectivity in Cloud Computing	14M
		UNIT – III	
5.	(a)	Compare Private Cloud and Public Cloud	7M
	(b)	Summarize approaches to virtualization	7M
		(OR)	
6.		Elaborate any two Cloud Service Models.	14M
		UNIT – IV	
7.	(a)	Write about Microsoft Azure platform	7M
	(b)	Discuss about Google App Engine	7M
		(OR)	
8.	(a)	What are different perspectives on SaaS development? Explain	7M
	(b)	Write about the new challenges of software development in cloud	7M
		UNIT-V	
9.		Demonstrate the networking Issues in Data Centers in detail	14M
		(OR)	
10.		Write in detail about following Cloud Service Providers i) IBM ii) google	14M

13.1.202

Q.P. Code: 1801704 **SET - 1**

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B. Tech. VII Semester (R18) Regular Examinations of January – 2022

SUB: Water Resources Engineering – II (CE)

Time: 3 Hours **Max. Marks: 70**

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT – I

1. Discuss about the concept of energy dissipation below spillways along with related diagrams. **14M**

(OR)

2. Design an ogee spillway for concrete gravity dam for the following data **14M**
(i) Average river bed level= 250m, (ii) R.L. of spillway crust = 350m
(iii) Slope of d/s face of gravity dam = 0.75:1, (iv) Design discharge = 6500cumecs
(v) Length of spillway = 5 spans with a clear length of 9m each
(vi) Thickness of each pier = 2m.

UNIT – II

3. Define canal fall. What are the factors should be considered while deciding the necessity and location of fall? **14M**

(OR)

4. Design a Sarda type fall for the following data **14M**
(i) Full supply discharge(u/s)/(d/s)= 40cumics
(ii) Full supply level(u/s)/(d/s)= 218.30m/216.80m
(iii) Full supply depth (u/s)/(d/s)= 1.8m/1.8m, (iv) Bed with (u/s)/(d/s)= 26m/26m
(v) Bed level (u/s)/(d/s)= 216.50m/215.00m, (vi) Drop= 1.5m
Design the floor on Bligh's theory taking coefficient of creep= 8. Check the design by Khosla's theory and make changes if necessary. Safe exit gradient may be taken as 1/5.

UNIT – III

5. What is meant canal outlet? What are the requirements of a good canal outlet and discuss the three types of canal outlets. **14M**

(OR)

6. Design a cross regulator for a canal for the following data **14M**

(i) Discharge	= 150 cumecs.	
(ii) F.S.L	U/s = 200.00	D/s = 199.50
(iii) Bed level	U/s = 197.50	D/s = 197.30
(iv) Bed width	U/s = 55 m	D/s = 50 m
(v) Depth of water	U/s = 2.50	D/s = 2.50 m

Assume a safe exit gradient of 1/6.

UNIT – IV

7. Define cross-drainage work. What are the factors to be considered while selecting the most suitable type of cross drainage work? **14M**

(OR)

8. With the help of a neat diagram explain in detail about the types of cross-drainage works. **14M**

UNIT-V

9. What are the functional requirements of multi-purpose hydro projects? Discuss in detail. **14M**

(OR)

10. List out the classifications of water resources development projects and discuss about Indian water resources. **14M**

Q.P. Code: 1803704

SET - 1

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B. Tech. VII Semester (R18) Regular Examinations of January – 2022

SUB: Production and Operations Management (ME)

Time: 3 Hours **Max. Marks: 70**

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT – I

1. Explain types of production and their advantages and disadvantages. 14M

(OR)

2. (a) What is lean manufacturing? Explain how lean production improves the production system. 7M
   (b) Explain features of Just In Time Production System. 7M

UNIT – II

3. (a) Explain error measuring methods in forecasting. 7M
   (b) A Manager of a restaurant must forecast weekly demand for pizzas so that he can order pizza shells weekly. Recently , demand has been as follows. 7M

Week	June 2	June 9	June 16	June 23	June 30	July7
Pizzas	50	65	52	56	55	60

i) Forecast the demand for pizza for June 23 to July 14 by using the simple moving average method with n =3
ii) Forecast the demand using weighted moving average with weights of 0.50, 0.30 and 0.20, with o.50 applying to the most recent demand.

(OR)

4. (a) Explain aggregate planning pure strategies. 7M
   (b) Explain difference between aggregate planning and master production schedule 7M

UNIT – III

5. Explain factors affecting plant location. 14M

(OR)

6. A proposal has been submitted to replace a group of assembly workers, each working individually, with an assembly line. The following table gives individual worker elements. 14M

Element	1	2	3	4	5	6	7	8
T_e (Min.)	1.0	0.5	0.8	0.3	1.2	0.2	0.5	1.5
Immediate Predecessors	--	--	1,2	2	3	3,4	4	5,6,7

The demand rate for this is 1600 units / week (assume 40 hours/week) and the current number of operators required to meet this demand is eight using the individual manual workers.
(i) Draw the precedence diagram
(ii) Assign workers to stations and compute Balance delay.

UNIT – IV

7. (a) What is inventory control? Derive Basic EOQ equation. 7M
   (b) The annual demand for an item is 3200 units. The unit cost is Rs.6. The inventory carrying cost is 25% per annum per unit. The cost of one procurement is Rs.150. Determine (i) EOQ (ii) No. of orders/year (iii) Total annual cost. 7M

(OR)

8. Given the following information for a project. 14M

i) Draw the Network

ii)Find critical path.

iii) Find Total float and Free float.

Operation	Predecessor	Days
A	-	20
B	A	14
C	B	10
D	B	5
E	B	15
F	C,D,E	6

UNIT-V

9. Determine the optimal sequences of jobs that minimizes the total elapsed time based on the following information, processing time on machines is given in hours and passing is not allowed. 14M

Job	A	B	C	D	E	F	G
M_1	3	8	7	4	9	8	7
M_2	4	3	2	5	1	4	3
M_3	6	7	5	11	5	6	12

(OR)

10. The following table contains information regarding jobs that are to be scheduled through one machine. 14M

Job	Processing time(days)	Due date
A	4	20
B	12	30
C	2	15
D	11	16
E	10	18
F	3	5
G	6	9

(i) What is First come first served (FCFS) schedule.

(ii) What is Earliest Due date(EDD) Schedule

(iii) What are the mean flow times for each of schedule above.

Q.P. Code: 1804710 | SET - 1

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B. Tech. VII Semester (R18) Regular Examinations of January – 2022

SUB: Digital Image & Video Processing (ECE)

Time: 3 Hours **Max. Marks: 70**

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT – I

1.	(a)	Explain connectivity between pixels of an images and discuss various distance measures with a an example.	8M
	(b)	Demonstrate image sampling & quantization.	6M
		(OR)	
2.		Explain various Mathematical tools used in Image processing with suitable examples.	14M

UNIT – II

3.	(a)	Compare and contrast histograms of dark, light, low contrast images with neat sketch.	9M
	(b)	Explain the fundamentals of spatial filtering.	5M
		(OR)	
4.	(a)	Analyze various properties of 2D DFT for image processing.	10M
	(b)	Discuss about sharpening filters in spatial domain.	4M

UNIT – III

5.	(a)	What is meant by image compression? Mention the standards given for image compression..	10M
	(b)	Explain discrete cosine transform clearly.	4M
		(OR)	
6.	(a)	Explain the following with suitable examples (i) Bit plane coding (ii) Arithmetic coding.	7M
	(b)	Obtain the Huffman code for the word 'COMMITTEE'.	7M

UNIT – IV

7.	(a)	Explain image degradation model with a neat sketch.	7M
	(b)	Analyze Weiner filter for image restoration.	7M
		(OR)	
8.	(a)	Discuss about edge detection in image processing and boundary detection.	7M
	(b)	Discuss clearly various region segmentation methods in image processing.	7M

UNIT-V

9.	(a)	Compare Analog and Digital video.	7M
	(b)	Discuss various video formats.	7M
		(OR)	
10.	(a)	Explain block matching motion estimation algorithm.	7M
	(b)	Explain the procedure for three step search motion estimation.	7M

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Q.P. Code: 18OE103 | **SET - 1**

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B. Tech. VII Semester (R18) Regular Examinations of January – 2022

SUB: Building Technology (Open Elective – II)

Time: 3 Hours **Max. Marks: 70**

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT – I

1.	(a)	Draw the cross section of a tree and explain the structure of timber.	7M
	(b)	Explain the classification of various types of woods used in buildings?	7M
		(OR)	
2.	(a)	Explain briefly about manufacturing of bricks.	7M
	(b)	What are the precautions to be taken while dressing a stone? Explain.	7M

UNIT – II

3.	(a)	What are the various laboratory tests for cement?	7M
	(b)	Explain about Setting and Fineness of cement	7M
		(OR)	
4.	(a)	Explain any two concrete tests in detail?	7M
	(b)	Compare and contrast advantages and disadvantages of using lime and cement in construction works.	7M

UNIT – III

5.	(a)	Define the terms in brick masonry: Header, Stretcher, Quoin, Queen closure and facing.	7M
	(b)	What are the qualities of good building stones? Discuss them?	7M
		(OR)	
6.	(a)	Explain any two types of flooring in detail?	7M
	(b)	Explain with neat sketches about Lean to roof.	7M

UNIT – IV

7.	(a)	Define a neat roof and mention its advantages & disadvantages over pitched roofs.	7M
	(b)	Explain in detail about Damp Proofing and water proofing materials?	7M
		(OR)	
8.	(a)	Explain the following items in case of staircases (i) Balustrade (ii) Handrail	7M
	(b)	Write a short note on Arches and Vaults.	7M

UNIT-V

9.	(a)	Explain pointing and plastering	7M
	(b)	What are the different types of painting?	7M
		(OR)	
10.	(a)	write about varnishes, Form Works	7M
	(b)	Explain about distempering, colour washing and painting.	7M

Q.P. Code: 18OE303 | SET - 1

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B. Tech. VII Semester (R18) Regular Examinations of January – 2022

SUB: Industrial Safety Management (Open Elective – II)

Time: 3 Hours **Max. Marks: 70**

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT – I

1.	(a)	Explain in details about history and development of industrial safety movement	7M
	(b)	Discuss in detail different acts and rules on industrial safety	7M
		(OR)	
2.	(a)	Explain in details about need for safety in industries	7M
	(b)	Explain different types and levels of safety committee	7M

UNIT – II

3.	(a)	Explain in details about identification of hazards and methods of eliminating it	7M
	(b)	Discuss the various mechanical hazards in industries and the safety devices used.	7M
		(OR)	
4.	(a)	Formulate the methods for reduction of electrical hazards	7M
	(b)	Discuss in details about chemical hazards	7M

UNIT – III

5.		Explain in details about general safety considerations to be considered in material handing while using chains, ropes and clamps	14M
		(OR)	
6.		Explain in details about operation and maintenance of mobile cranes and tower cranes	14M

UNIT – IV

7.	(a)	Explain various safety measures in Welding	7M
	(b)	Explain in details about safety of pressure vessels in industry	7M
		(OR)	
8.		Explain the safeguarding methods and safe operation procedures for Hot working and cold working	14M

UNIT-V

9.		Explain id details about importance of safety training and different training methods	14M
		(OR)	
10.		Explain appropriate methods of promoting safe practices and the role of government and private consulting agencies	14M

Q.P. Code: 18OE404

SET - 1

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B. Tech. VII Semester (R18) Regular Examinations of January – 2022

SUB: Principles of Communication (Open Elective – II)

Time: 3 Hours **Max. Marks: 70**

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT – I

1.	(a)	What are the various types of telecommunication systems? Briefly explain about internet.	7M
	(b)	Write short notes on evolution of telecommunications.	7M
		(OR)	
2.	(a)	Define Telecommunication and list the examples of it.	7M
	(b)	With neat sketch, explain the operation of telephone network.	7M

UNIT – II

3.	(a)	Define standard form of amplitude modulation, derive its equation and explain each term. Derive the Spectral equation of AM wave and hence draw and explain the AM spectrum.	10M
	(b)	A 1000 KHz carrier is simultaneously modulated to 300 Hz, 800Hz and 2KHz audio Sinewaves. What will be the frequency content of AM signal?	4M
		(OR)	
4.	(a)	With a neat diagram, explain the basic elements of a PCM system.	7M
	(b)	What is the necessity of Digitizing of the analog signals?	7M

UNIT – III

5.	(a)	Explain the principle and working of OFC system with a block diagram.	7M
	(b)	Explain single mode step index and multimode graded index fiber optic cables.	7M
		(OR)	
6.	(a)	List out various elements required in designing OFC system.	7M
	(b)	Explain the use of optical fiber in communication.	7M

UNIT – IV

7.	(a)	Why the uplink frequency is always greater than the downlink frequency in satellite communication? Explain.	7M
	(b)	Draw the general configuration of an earth station and explain each block.	7M
		(OR)	
8.	(a)	Explain the classification of satellite according to the various applications.	7M
	(b)	Explain the frequency allocations for satellite services.	7M

UNIT-V

9.	(a)	What are the principal advantages of OFDM?	7M
	(b)	Discuss the development of 3rd generation wireless networks	7M
		(OR)	
10.	(a)	Distinguish between TDMA and FDMA with a neat sketch bringing out salient Features.	7M
	(b)	Discuss about BLUE TOOTH usage models.	7M

Q.P. Code: 18OE503 | SET - 1

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B. Tech. VII Semester (R18) Regular Examinations of January – 2022

SUB: Python Programming (Open Elective – II)

Time: 3 Hours **Max. Marks: 70**

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT – I

1.	(a)	Write short note on the following? i) Multiline comments ii) Docstring in Python iii) Rules and Naming convention for variables and constants. iv) Python import statement.	8M
	(b)	Show how an input and output function is performed in python with an example.	6M
		(OR)	
2.	(a)	Discuss about mutable and immutable Data types in Python with examples.	7M
	(b)	What is Python? Describe its features and applications?	7M
		UNIT – II	
3.	(a)	Explain about iteration statements with examples.	7M
	(b)	Write a program to generate Fibonacci series using Python.	7M
		(OR)	
4.	(a)	Explain various Jump Control Statements in Python with Examples	7M
	(b)	Explain pass and assert statements with suitable examples	7M
		UNIT – III	
5.	(a)	Write a suitable program to explain passing variable length arguments to a function.	7M
	(b)	Write a suitable python program to describe scope of variables.	7M
		(OR)	
6.	(a)	Can a function return multiple values? If yes, Explain with a suitable python program.	6M
	(b)	What is recursion? Write a python program to find factorial of a given number using recursion.	8M
		UNIT – IV	
7.	(a)	Discuss the difference between tuple and list.	7M
	(b)	Discuss the various operation that can be performed on a tuple and lists (minimum 5) with an example program.	7M
		(OR)	
8.	(a)	Discuss about list pop( ), insert( ) and remove( ) methods with examples.	6M
	(b)	Explain write() and writelines() methods and read() and readline() methods with examples	8M
		UNIT-V	
9.	(a)	What are different types of inheritance supported by Python? Explain.	7M
	(b)	Explain how to implement constructor and destructor in python with example.	7M
		(OR)	
10.	(a)	What is an abstract class? Implement abstract class with a suitable python program.	7M
	(b)	Explain various types of variables and methods in OOP Python.	7M

Q.P. Code: 18OE504

SET - 1

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B. Tech. VII Semester (R18) Regular Examinations of January – 2022

SUB: Computer Networks (Open Elective – II)

Time: 3 Hours **Max. Marks: 70**

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT – I

1.	(a)	Explain the different topologies of the network.	7M
	(b)	With neat sketch explain Coaxial cable, Standards of coaxial cable and connectors of coaxial cables.	7M
		(OR)	
2.	(a)	With neat sketch discuss the functionalities of each layer in TCP/IP protocol suite.	7M
	(b)	What are the three main causes of transmission impairments? Explain in detail.	7M
		UNIT – II	
3.	(a)	What is the significance of data link layer? Explain the design issues of data link layer.	7M
	(b)	Explain fast Ethernet and gigabit Ethernet.	7M
		(OR)	
4.	(a)	Explain Error Correcting and Error Detecting codes.	7M
	(b)	What is the purpose of CSMA CD? And Explain it.	7M
		UNIT – III	
5.	(a)	Write an example, demonstrate how to make routing table using distance vector routing. And list down the limitation.	7M
	(b)	Explain about IPV6 and compare it with IPV4.	7M
		(OR)	
6.	(a)	Explain Flooding algorithm.	7M
	(b)	How crash recovery is managed at the transport layer? Explain in detail.	7M
		UNIT – IV	
7.	(a)	Explain in brief about TCP connection establishment and Release.	7M
	(b)	Explain the principles of congestion control in TCP.	7M
		(OR)	
8.	(a)	What are the services provided by transport layer to the upper layers?	7M
	(b)	Write a short note on Remote Procedure Call..	7M
		UNIT-V	
9.		What is DNS? What are the services provided by DNS and explain how it works.	14M
		(OR)	
10.	(a)	What is HTTP? Explain Nonpersistent and Persistent connections of HTTP.	7M
	(b)	Write short notes on Electronic Mail.	7M

Q.P. Code: 18OE2603 | SET - 1

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B. Tech. VII Semester (R18) Regular Examinations of January – 2022

SUB: Professional Communication (Open Elective – II)

Time: 3 Hours **Max. Marks: 70**

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT – I

1. (a) Discuss the characteristics and importance of Technical Communication. 7M
   (b) What are the difference between general and technical communication? 7M

(OR)

2. (a) Form Sentences for the following. 3M
   (i) Verb + Noun (ii) Adjective + Verb (iii) Verb + Adverb
   (b) Change the following active sentences into passive voice. 3M
   (i) I did not beat her.
   (ii) (ii) I will never forget this experience.
   (iii) Mother made a cake yesterday
   (c) Choose the Correct Answer. 4M
   (i) As he had no shirt, the sun burnt his _____ skin. (bare/bear)
   (ii) I really want to _____ some weight. (lose/loss/loose)
   (iii) An oil lamp needs a _____(weak/ week/wick)
   (iv) My little brother is very_____ so we don't let him touch anything_____(irresponsible; breakable/irresponsible; breakable/ irresponsible; breakable)

UNIT – II

3. (a) Elaborate on the general strategies for Reading Comprehension. 7M
   (b) 'Scanning allows you to locate precise information'- Comment on it. 7M

(OR)

4. (a) What are the various styles of reading? 7M
   (b) List out the process for better understanding of comprehension. 7M

UNIT – III

5. (a) What are the four types of Oral Presentation? 7M
   (b) What are the strategies involved in Group Discussion? 7M

(OR)

6. (a) How is voice modulation used in Public Speaking? 7M
   (b) Discuss the effectiveness of visuals in a good presentation. 7M

UNIT – IV

7. (a) General Listening and Intensive Listening – Explain. 7M
   (b) How to develop effective listening skill? 7M

(OR)

8. (a) What is a Ted Talk style lecture? 7M
   (b) Who is a good listener? 7M

UNIT-V

9. Spot the Errors 14M

(i) Can you stop to shout? I've got a bad headache.
(ii) Let me give you some advice – don't talk to her!
(iii) I think is a pity.
(iv) She's been living here since she has twenty years old.
(v) I wish I could tell you.
(vi) Your english is really good.
(vii) Do you know what time leaves the train?
(viii) I have been living in this city since last several years but have never experienced any discrimination
(ix) There was a big argument about if we should move to a bigger house.
(x) I found this bangle while digging in the backyard. I don't know who it belonged to
(xi) The judge paid a lot of attention to that the master had abused the boy both physically and emotionally
(xii) By next Christmas, we will have been here for eight years.
(xiii) Divide this apple between the girls
(xiv) The police has come

(OR)

10. (a) Write a letter to the Mayor of your city requesting him for a children's park in your locality. 7M

(b) How to write a Lecture Report? 7M

Q.P. Code: 18OE2610**4**

SET - 1

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B. Tech. VII Semester (R18) Regular Examinations of January – 2022

SUB: Digital & Social Media Management (Open Elective – II)

Time: 3 Hours **Max. Marks: 70**

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT – I

1.	(a)	Explain the need and significance of Digital and Social Media Management?	7M
	(b)	Write about the analysis of online Marketplaces?	7M
		(OR)	
2.	(a)	What Macro Environment factors influence Digital Marketing? Explain	7M
	(b)	Discuss about the 3i principles?	7M
		UNIT – II	
3.	(a)	What do you mean by Content Marketing? Explain its importance?	7M
	(b)	Explain 'Digital Display Advertising' with relevant examples?	7M
		(OR)	
4.	(a)	Write about the need for Search Engine Optimization? Discuss few techniques?	7M
	(b)	Discuss few techniques of Content Marketing?	7M
		UNIT – III	
5.	(a)	Explain role of Social Media Marketing in the present scenario?	7M
	(b)	How to eradicate Cyber Crime in digital marketing? Suggest few strategies?	7M
		(OR)	
6.	(a)	Write a short note on Social Media Channels?	7M
	(b)	Explain the process of developing a Social Media Strategy?	7M
		UNIT – IV	
7.	(a)	Explain the growth and evolution of M-Commerce?	7M
	(b)	State the fundamentals of Mobile Marketing?	7M
		(OR)	
8.	(a)	Explain the overview of mobile and app-based Marketing?	7M
	(b)	Write about Digital Consumption? State the objectives of Mobile Marketing?	7M
		UNIT-V	
9.	(a)	State few applications and advantages of Social media analytics?	7M
	(b)	What is Content? How do you create it?	7M
		(OR)	
10.	(a)	Explain different types of Content Marketing Channels?	7M
	(b)	What are the drivers for Digital Marketing in India?	7M

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Q.P. Code: 18OE105

SET - 1

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B. Tech. VII Semester (R18) Regular Examinations of January – 2022

SUB: Water Supply Engineering (Open Elective – III)

Time: 3 Hours **Max. Marks: 70**

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT – I

1.	(a)	Discuss the factors affecting water demand. Describe the importance and necessity of protected water supply system.	7M
	(b)	What do you understand by 'per capita demand' of water? How is it determined?	7M
		(OR)	
2.	(a)	Draw the flow chart of public water supply system and discuss it importance from urban water supply point of view.	7M
	(b)	Explain in detail arithmetical increase method, geometric increase method and incremental increase method.	7M

UNIT – II

3.	(a)	Discuss in detail on water borne diseases. Explain the measures to be taken to prevent water borne diseases in hilly regions in India.	7M
	(b)	Discuss in detail causes and effects of water pollution.	7M
		(OR)	
4.	(a)	List out physical, chemical and biological tests. Describe the determination of pH and explain its environmental significance.	7M
	(b)	Describe the Bureau of Indian Standard guidelines for drinking water. What are the permissible limits of chlorine for drinking water and construction activity?	7M

UNIT – III

5.	(a)	Draw a neat flow chart of water treatment plant and explain individual treatment units.	7M
	(b)	Describe with help of a neat sketch slow sand filter. Explain its working.	7M
		(OR)	
6.	(a)	Discuss various types of filtrations and explain the factors effecting filtration	7M
	(b)	Discuss on break point chlorination and Disinfection methods	7M

UNIT – IV

7.	(a)	Explain with a neat sketch, principle and working of desalination.	7M
	(b)	Distinguish between fluoridation and defluoridation. Explain advanced odour removal methods.	7M
		(OR)	
8.	(a)	Explain with a neat sketch, principle and functions of defluorination using contact precipitating technique.	7M
	(b)	Describe aeration methods for the removal of objectionable dissolved gases.	7M

UNIT-V

9.	(a)	Explain in detail different layouts of water distribution.	7M
	(b)	Distinguish between hardy cross method and equivalent pipe method.	7M
		(OR)	
10.	(a)	Explain in details the requirements of water distribution system. List out different layouts.	7M
	(b)	What do you understand by an equivalent pipe? How do you determine its length when the pipes are in series?	7M

Q.P. Code: 18OE305 | SET - 1

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B. Tech. VII Semester (R18) Regular Examinations of January – 2022

SUB: Quantitative Analysis for Business Decisions (Open Elective – III)

Time: 3 Hours **Max. Marks: 70**

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT – I

1. (a) Comment the following statements. 7M
(i) Operations Research is the art of wining war without actually fighting it.
(ii) Operations Research is the art of finding bad answer where worse exists.
(b) What is an Operations Research Model? What are the its characteristics and limitations? 7M

(OR)

2. (a) What are the limitations of linear programming? 7M
(b) The manager of an oil refinery must decide on the optimal mix of two possible blending processes of which the input and output per production run are given as follows: 7M

Process (units)	Input (units)		Output	
	Crude A	Crude B	Gasoline X	Gasoline Y
1	5	3	5	8
2	4	5	4	4

The maximum amount available of crude A and B are 200 units and 150 units, respectively. Market requirements show that at least 100 units of gasoline X and 80 units of gasoline Y must be produced. The profit per production run from process 1 and process 2 are Rs 300 and Rs 400, respectively. Formulate this problem as an LP model to maximize profit.

UNIT – II

3. A manufacturer has distribution centres at Agra, Allahabad and Kolkata. These centres have availability of 40, 20 and 40 units of his product, respectively. His retail outlets at A, B, C, D and E require 25, 10, 20, 30 and 15 respectively. The transportation cost (in rupees) per unit between each centre outlet is given below: 14M

Distribution Centres	Retail Outlets				
	A	B	C	D	E
Agra	55	30	40	50	40
Allahabad	35	30	100	45	60
Kolkata	40	60	95	35	30

Determine the optimal distribution to minimize the cost of transportation.

(OR)

4. A department has five employees with five jobs to be performed. The time (in hours) each man will take to perform each job is given in the effectiveness matrix. 14M

	Employees					
Jobs		I	II	III	IV	V
	A	10	5	13	15	16
	B	3	9	18	13	6
	C	10	7	2	2	2
	D	7	11	9	7	12
	E	7	9	10	4	12

How should the jobs be allocated, one per employee, so as to minimize the total man-hours?

UNIT – III

5. The following mortality rates have been observed for a certain type of fuse: 14M

Week	:	1	2	3	4	5
% failing by the end of week	:	5	15	35	57	100

There are 1,000 fuses in use and it costs Rs 5 to replace an individual fuse. If all fuses were replaced simultaneously it would cost Rs 1.25 per fuse. It is proposed to replace all fuses at fixed intervals of time, whether or not they have burnout, and to continue replacing burnt out fuses as they fail. At what intervals the group replacement should be made? Also prove that this optimal policy is superior to the straight forward policy of replacing each fuse only when it fails.

(OR)

6. A company has the option to buy one of the mini computers: MINICOMP and CHIPCOMP. MINICOMP costs Rs 5 lakh, and running and maintenance costs are Rs 60,000 for each of the first five years, increasing by Rs 20,000 per year in the sixth and subsequent years. CHIPCOMP has the same capacity as MINICOMP, but costs only Rs 2, 50,000. However, its running and maintenance costs are Rs 1, 20,000 per year in the first five years, and increase by Rs 20,000 per year thereafter. If the money is worth 10 percent per year, which computer should be purchased? What are the optimal replacement periods for each of the computers? Assume that there is no salvage value for either computer. Explain your analysis. 14M

UNIT – IV

7. (a) Explain the procedure of arithmetic method for solving the game. 7M

(b) Find the range of values of p and q which will render the payoff element a_{22} as saddle point for the game whose payoff matrix (a_{ij}) is given below: 7M

$$\begin{array}{c} \\ Player\ A \end{array} \begin{array}{c} Player\ B \\ \begin{bmatrix} 2 & 4 & 5 \\ 10 & 7 & q \\ 4 & p & 6 \end{bmatrix} \end{array}$$

(OR)

8. The payoff matrix for a particular competitive situation is as under 14M

		B		
		I	II	III
A	I	7	6	3
	II	-2	2	-3
	III	5	9	7

(i) Reduce the size of the game to 2×2 matrix by method of dominance

(ii) Determine the optimal strategies

(iii) Calculate value of the game

UNIT-V

9. Explain the elements of queuing system. 14M

(OR)

10. On an average 96 patients per 24 hour day require the service of an emergency clinic. Also on average, a patient requires 10 minutes of active attention. Assume that the facility can handle only one emergency at a time. Suppose that it costs the clinic Rs.100 per patient treated to obtain an average servicing time of 10 minutes, and that each minute of decrease in this average time would cost Rs.10 per patient treated. How much would have to be budgeted by the clinic to decrease the average size of the queue from $1\frac{1}{3}$ patient to ½ patient. 14M

Q.P. Code: 18OE306 | SET - 1

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B. Tech. VII Semester (R18) Regular Examinations of January – 2022

***SUB:* Entrepreneurship (Open Elective – III)**

Time: 3 Hours **Max. Marks: 70**

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT – I

1.	(a)	Define Enterprise. Explain the different types of enterprises.	7M
	(b)	Explain the procedure of setting up a small-scale industrial unit.	7M
		(OR)	
2.		Discuss linkage among small, medium and heavy industries.	14M

UNIT – II

3.		Explain the problems faced by women entrepreneurs in India.	14M
		(OR)	
4.		Discuss the Environmental Factors affecting entrepreneurship.	14M

UNIT – III

5.		Elucidate the Elements of a Business Plan.	14M
		(OR)	
6.		Explain Market Analysis.	14M

UNIT – IV

7.		What is the importance of a Project Report? Enumerate the contents of a project report.	14M
		(OR)	
8.		Explain CPM and PERT.	14M

UNIT-V

9.		State the strengths and weakness of Time management.	14M
		(OR)	
10.		Write the various concepts and models of Leadership.	14M

Q.P. Code: 18OE505 | SET - 1

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B. Tech. VII Semester (R18) Regular Examinations of January – 2022

SUB: Web Technologies (Open Elective – III)

Time: 3 Hours **Max. Marks: 70**

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT – I

1.	(a)	How to Create a form in HTML? Explain with an example.	7M
	(b)	Create a form in HTML using Text area, Check Box and colors	7M
		(OR)	
2.	(a)	What are the different types of Lists in HTML and discuss with suitable example?	7M
	(b)	Create a form in HTML using Text, colors, Links and images	7M

UNIT – II

3.		Write a java script using Control structures and Functions	14M
		(OR)	
4.		Discuss in Detail about types of operators available in Java Script	14M

UNIT – III

5.		Write and Explain java swing program to implement Text Boxes and Combo Boxes	14M
		(OR)	
6.		What is mean by Applets? how applets are used in web technologies	14M

UNIT – IV

7.		Discuss in detail about Servlets with suitable example	14M
		(OR)	
8.	(a)	What is web server? Write notes on Tomcat server.	7M
	(b)	What is a cookie? Give the information that is saved for cookie on the user's machine	7M

UNIT-V

9.	(a)	What are the advantages of JSP and how the problem with servlet give one example	7M
	(b)	Discuss in detail about JSP Processing	7M
		(OR)	
10.		List and Explain the steps involved in a basic JDBC program	14M

Q.P. Code: 18OE506 | SET - 1

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B. Tech. VII Semester (R18) Regular Examinations of January – 2022

SUB: Operating Systems (Open Elective – III)

Time: 3 Hours **Max. Marks: 70**

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT – I

1.	(a)	Explain the different functionalities of an Operating System	7M
	(b)	Explain various system call present in Operating system	7M
		(OR)	
2.	(a)	With a neat sketch briefly explain about the operating system services	7M
	(b)	Explain about MS-DOS and Unix layered operating system	7M
		UNIT – II	
3.	(a)	Explain about Priority scheduling algorithm with an example	7M
	(b)	Write about Preemptive scheduling algorithm with an example	7M
		(OR)	
4.	(a)	Explain about critical section problem and its solutions	7M
	(b)	What are semaphores explain with an example	7M
		UNIT – III	
5.	(a)	Discuss briefly the swapping concept with necessary examples?	7M
	(b)	Explain about demand paging	7M
		(OR)	
6.	(a)	Explain about the concept of segmentation	7M
	(b)	State and explain about virtual memory concept with neat diagram?	7M
		UNIT – IV	
7.	(a)	Define deadlock and what are the necessary conditions for a deadlock	7M
	(b)	Explain the concept of recovery from deadlock	7M
		(OR)	
8.	(a)	Write about File access method in detail	7M
	(b)	Write about two level directory and tree structured directory system	7M
		UNIT-V	
9.	(a)	Write about goals and principles of protection	7M
	(b)	Explain the implementation of access matrix	7M
		(OR)	
10.	(a)	Explain about the concept of Access matrix	7M
	(b)	Write about domain structure with an example	7M

Q.P. Code: 18OE2613 | SET - 1

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B. Tech. VII Semester (R18) Regular Examinations of January – 2022

SUB: Fuel Technology (Open Elective – III)

Time: 3 Hours **Max. Marks: 70**

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT – I

1.	(a)	What are chemical fuels? Give complete classification of chemical fuels with examples.	8M
	(b)	Mention the criteria for selecting good fuel.	6M
		(OR)	
2.	(a)	What is meant by calorific value of a fuel? Discuss various types of calorific value and give their relation.	8M
	(b)	Write a short note on relative merits of solid, liquid and gaseous fuels.	6M
		UNIT – II	
3.	(a)	How is metallurgical coke prepared?	8M
	(b)	List the properties, advantages and disadvantages of solid fuels	6M
		(OR)	
4.	(a)	Outline the recovery of important products during the manufacture of metallurgical coke.	4M
	(b)	Describe the determination of calorific value of solid fuel using bomb calorimeter with rough diagram.	10M
		UNIT – III	
5.	(a)	Define synthetic petrol and discuss its preparation by Bergius process with a neat diagram.	10M
	(b)	List the uses of various petroleum products obtained during fractional distillation.	4M
		(OR)	
6.	(a)	Outline the refining of petroleum with a rough diagram.	8M
	(b)	Discuss the properties and disadvantages of liquid fuels.	6M
		UNIT – IV	
7.		Discuss the determination of calorific value of gaseous fuels by Junker's Gas Calorimeter.	14M
		(OR)	
8.		Compare the preparation, properties and uses of natural gas, producer gas and water gas in brief	14M
		UNIT-V	
9.	(a)	What is meant by an alternative fuel? Give examples. List the merits and demerits of alternate fuels.	8M
	(b)	Discuss the effects of exhaust gas emissions on environment.	6M
		(OR)	
10.	(a)	Explain the types and applications of biofuels	8M
	(b)	Explain the significance of alternate fuels with examples	6M

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Q.P. Code: 1801705 | **SET - 1**

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B. Tech. VII Semester (R18) Regular Examinations of January – 2022

SUB: Sanitary & Solid Waste Management (CE)

Time: 3 Hours **Max. Marks: 70**

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT – I

1.	(a)	Define the following terms i)Sewage, ii) Sullage, iii) Storm Water and iv) Sludge	6M
	(b)	Explain the fluctuations in Sewage flows and their importance in collection and treatment Systems	8M
		(OR)	
2.	(a)	Determine the size of a circular sewer for a discharge of 700 lps running half-full. Assume hydraulic gradient of 1 in 1500 and Manning's constant n=0.012.	7M
	(b)	What are the various sewer appurtenances? Discuss in detail about manhole.	8M

UNIT – II

3.	(a)	Explain the chemical composition of sewage	8M
	(b)	Determine 5 day BOD of sample at 20°C, if its3 day BOD at 20°C is 200 mg/l. Assume constant rate K_D at 20 °C is 0.1/day.	7M
		(OR)	
4.	(a)	Explain the general outline of domestic sewage treatment plant.	8M
	(b)	Design a primary clarifier to treat 4 MLD of sewage. Assume suitable data if required.	7M

UNIT – III

5.	(a)	Write a note suspended and attached growth of biological systems.	7M
	(b)	Explain the working principles of activated sludge treatment process, with neat sketch	8M
		(OR)	
6.	(a)	The colony of the industrial estate has population of 20,000 persons. The sewage flow is 135lpcd. The 5 day BOD of sewage is 300 mg/l. Design the oxidation pond for treatment of sewage. Assume any suitable data if required.	8M
	(b)	Explain the operational problems of biological treatment process units	7M

UNIT – IV

7.	(a)	Explain the objectives of Tertiary Treatment	5M
	(b)	Describe the removal processes of Nitrogen from Sewage	9M
		(OR)	
8.	(a)	With the help of neat sketches describe the working principle of sludge digestion tank	8M
	(b)	Design a septic tank for a colony 300 users, assuming the rate of water supply as 120 lpd	7M

UNIT-V

9.	(a)	Explain the various source and its types of solid waste	7M
	(b)	What are the various methods of solid waste disposal? Discuss about sanitary land fill in detail.	8M
		(OR)	
10.	(a)	What are various sources of air pollutions? Explain the effects of air pollutions on	8M
	(b)	Explain the permissible limits of noise pollution.	7M

Q.P. Code: 1801705 | SET - 1

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B. Tech. VII Semester (R18) Regular Examinations of January – 2022

SUB: Sanitary & Solid Waste Management (CE)

Time: 3 Hours **Max. Marks: 70**

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT – I

1.	(a)	Define the following terms i)Sewage, ii) Sullage, iii) Storm Water and iv) Sludge	6M
	(b)	Explain the fluctuations in Sewage flows and their importance in collection and treatment Systems	8M
		(OR)	
2.	(a)	Determine the size of a circular sewer for a discharge of 700 lps running half-full. Assume hydraulic gradient of 1 in 1500 and Manning's constant n=0.012.	7M
	(b)	What are the various sewer appurtenances? Discuss in detail about manhole.	8M

UNIT – II

3.	(a)	Explain the chemical composition of sewage	8M
	(b)	Determine 5 day BOD of sample at 20°C, if its3 day BOD at 20°C is 200 mg/l. Assume constant rate K_D at 20 °C is 0.1/day.	7M
		(OR)	
4.	(a)	Explain the general outline of domestic sewage treatment plant.	8M
	(b)	Design a primary clarifier to treat 4 MLD of sewage. Assume suitable data if required.	7M

UNIT – III

5.	(a)	Write a note suspended and attached growth of biological systems.	7M
	(b)	Explain the working principles of activated sludge treatment process, with neat sketch	8M
		(OR)	
6.	(a)	The colony of the industrial estate has population of 20,000 persons. The sewage flow is 135lpcd. The 5 day BOD of sewage is 300 mg/l. Design the oxidation pond for treatment of sewage. Assume any suitable data if required.	8M
	(b)	Explain the operational problems of biological treatment process units	7M

UNIT – IV

7.	(a)	Explain the objectives of Tertiary Treatment	5M
	(b)	Describe the removal processes of Nitrogen from Sewage	9M
		(OR)	
8.	(a)	With the help of neat sketches describe the working principle of sludge digestion tank	8M
	(b)	Design a septic tank for a colony 300 users, assuming the rate of water supply as 120 lpd	7M

UNIT-V

9.	(a)	Explain the various source and its types of solid waste	7M
	(b)	What are the various methods of solid waste disposal? Discuss about sanitary land fill in detail.	8M
		(OR)	
10.	(a)	What are various sources of air pollutions? Explain the effects of air pollutions on	8M
	(b)	Explain the permissible limits of noise pollution.	7M

Q.P. Code: 1801710

SET - 1

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B. Tech. VII Semester (R18) Regular Examinations of January – 2022

SUB: Construction Project Planning & Systems (CE)

Time: 3 Hours **Max. Marks: 70**

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT – I

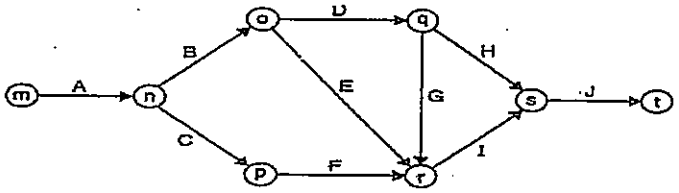
1. (a) Explain the History of Construction Management. 7M
   (b) Write the Functions and Responsibilities of Construction Manager. 7M

(OR)

2. (a) What are the stages of construction management? 7M
   (b) Explain the Major problems in Construction Industry. 7M

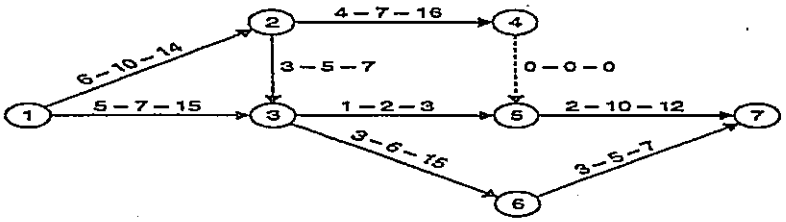
UNIT – II

3. (a) Explain the significance of breakdown of structures and draw pictorial representation of RCC work. 7M
   (b) What is the importance of numbering an event? Using Fulkerson rule, number the event of the network shown. 7M



(OR)

4. (a) Define float and explain all types of floats. 7M
   (b) The network for a certain project is shown in the picture. Determine the expected time for each path. Which path is critical? 7M



UNIT – III

5. (a) Explain about Earth Moving Equipment and types. 7M
   (b) Explain about Compaction Equipment and types. 7M

(OR)

6. (a) Explain about Concrete Mixing Equipment and types. 7M
   (b) Explain about Hauling Equipment and types. 7M

UNIT – IV

7. (a) Write the different Stages of Inspection and Quality Control. 7M
   (b) What are the causes of accidents in construction? 7M

(OR)

8. (a) What is the need of quality control in construction industry? 7M
   (b) How does safety important in construction aspect. 7M

UNIT-V

9. (a) Explain the significance of departmental execution. 7M
   (b) Explain two significant aspects of EMD and Security Deposit 7M

(OR)

10. (a) Explain significance of Termination of contract and when it proposes. 7M
    (b) Discuss minimum wages act and labor act. 7M

Q.P. Code: 1801711

SET - 1

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B. Tech. VII Semester (R18) Regular Examinations of January – 2022

SUB: Environmental Impact Assessment (CE)

Time: 3 Hours **Max. Marks: 70**

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT – I

1.	(a)	What do you understand by IEE? Discuss briefly.	7M
	(b)	Explain the elements of EIA	7M
		(OR)	
2.	(a)	Explain the factors affecting EIA	7M
	(b)	Describe the classification of environmental parameters.	7M
		UNIT – II	
3.	(a)	Discuss the merits and drawbacks of Adhoc method.	7M
	(b)	Discuss the salient features of Matrix methods.	7M
		(OR)	
4.	(a)	Explain the criteria for selection of EIA methodology	7M
	(b)	Explain the Environmental media quality Index	7M
		UNIT – III	
5.	(a)	Explain the following terms i) Delineation of study area and ii) Identification of activities	7M
	(b)	Explain briefly the assessment of impact of developmental activities on ground water	7M
		(OR)	
6.	(a)	Describe the environmental impact assessment on biological environment	7M
	(b)	Explain the generalized approach for assessment of air pollution impact	7M
		UNIT – IV	
7.	(a)	Explain the assessment of impact of development activities on vegetation and wildlife.	9M
	(b)	Explain the environmental impacts of deforestation	5M
		(OR)	
8.	(a)	Explain the stages of environmental audit.	7M
	(b)	Write a note on Evaluation of Audit Data and Preparation of Audit Report.	7M
		UNIT-V	
9.	(a)	Explain the salient features of Air (Prevention and Control) Act, 1981	7M
	(b)	Explain the salient features of water Act, 1974	7M
		(OR)	
10.	(a)	Explain the salient features of Environmental Protection Act, 1986	7M
	(b)	Explain the preparation of environmental impact assessment statement for any one industry.	7M

Q.P. Code: 1801702 | SET - 1

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B. Tech. VII Semester (R18) Regular Examinations of January – 2022

SUB: Design & Detailing of Reinforced Concrete Structures – II (CE)

Time: 3 Hours **Max. Marks: 70**

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT – I

1. A simply supported beam of size 200 x 500 mm having reinforced with 3-T20 bars at the bottom and 3-T16 bars at the top, with an effective cover of 50 mm on both top and bottom. If it is subjected to a live load of 20 kN/m and a concentrated dead load of 40 kN at mid-span, calculate the short-term deflection considering the span of the beam as 6m, grade of concrete as M25 and grade of steel as Fe500. 14M

(OR)

2. (a) Illustrate the various types of cracks in RC structures. 7M
   (b) Describe the mechanism of cracking. Discuss about the crack control provisions. 7M

UNIT – II

3. A straight stair in a residential building in supported on wall on one side and stringer beam on the other side. The risers are 150 mm and treads are 230 mm, and the horizontal span of the stairs may be taken as 1.2 meters. Design the steps. Use M25 grade concrete and Fe415 grade steel. 14M

(OR)

4. Design a dog-legged stair for a building in which the vertical distance between floors is 3.3 m. The stair hall measures 3 m x 5.1 m. The live load may be taken as 3 kN/sq.m. Use M25 grade concrete and Fe415 grade steel. 14M

UNIT – III

5. A plain braced concrete wall of dimensions 7 m high, 6 m long and 230mm thick is restrained against rotation at its base and unrestrained at the ends. If it has to carry a factored total gravity load of 250 kN and a factored horizontal load of 10 kN at the top, check the safety of the wall. Assume M20 grade concrete and Fe415 grade steel. 14M

(OR)

6. (a) What are the various types of retaining wall? When and where they will be used? 7M
   (b) Explain about the various modes of failure of a retaining wall. 7M

UNIT – IV

7. Design an isolated footing of uniform thickness of a R.C. column bearing a vertical load of 1500 kN and having a base of size 300 x 600 mm. The safe bearing capacity of soil may be taken as 180 kN/Sq.m. Use M25 grade concrete and Fe415 grade steel 14M

(OR)

8. Design a pile under a column transmitting an axial load of 1200 kN. The pile is to be driven to a hard stratum available at a depth of 10 m. Use M30 grade concrete and Fe415 grade steel. 14M

UNIT-V

9. Design a rectangular water tank with flexible connection at base for a capacity of 3, 60,000 liters. The tank rests on a firm level ground. The height of tank including a free board of 200 mm should not exceed 3.6m. The tank is open at top. Use M 25 concrete and Fe 415 steel. Draw to a suitable scale: (i) Plan at base (ii) Cross section of tank. 14M

(OR)

10. Design an R.C. tank having internal dimensions of 8 m x 4 m x 3.3 m, the tank is to be provided underground. The soil surrounding the tank is likely to get wet. Angle of repose of soil in dry state is 30° and in wet state is 5°. Adopt suitable working stresses. Soil weights 20 kN/m^3. Adopt M25 grade concrete and Fe 415 grade steel. 14M

Q.P. Code: 1802702 | SET - 1

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B. Tech. VII Semester (R18) Regular Examinations of January – 2022

SUB: Utilization of Electric Power (EEE)

Time: 3 Hours **Max. Marks: 70**

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT – I

1.	(a)	Define i) luminous flux ii) Candle Power iii) Lumen iv) Solid Angle	7M
	(b)	Discuss the laws of illumination.	7M
		(OR)	
2.	(a)	Discuss about the mercury vapour lamp with neat diagram.	7M
	(b)	A lamp of 100 CP is suspended 3 meters above the horizontal plane. Calculate the illumination at the point on the horizontal plane i) Directly below the lamp ii) 3meters away from the vertical plane	7M

UNIT – II

3.	(a)	Explain various types of Resistance Heating.	7M
	(b)	Explain the principle of Induction heating, what are the applications of induction Heating.	7M
		(OR)	
4.	(a)	Describe with a neat sketch, various methods of electric resistance welding.	7M
	(b)	The power required for the dielectric heating of a slab of resin 150sq-cm in area and 2cm thickness is 200W at a frequency of 30MHz. The material has relative permittivity of 5 and a p.f 0.05. Determine the voltage necessary and current flowing through the material.	7M

UNIT – III

5.	(a)	What are the relative advantages and disadvantages of D.C and A.C electric drives.	7M
	(b)	Outline the factors governing the size and rating of the motor for a particular drive.	7M
		(OR)	
6.	(a)	What is load equalization? With necessary illustrations, derive the expression for motor torque for load equalization.	7M
	(b)	Explain various methods of speed control of AC motors	7M

UNIT – IV

7.	(a)	Discuss about system of track electrification.	7M
	(b)	What are the special features of traction motors.	7M
		(OR)	
8.		Explain the following electric braking methods. i. Plugging ii. Rheostatic braking iii. Regenerative braking.	14M

UNIT-V

9.	(a)	Derive an expression for the distance travelled by an electric train using quadrilateral speed-time curve.	7M
	(b)	The average speed of a train is 50 Kmph. Determine its maximum speed assuming trapezoidal speed time curve if the distance between stops is 2.5 Km, acceleration 1.8 Kmphps and retardation 3 Kmphps	7M
		(OR)	
10.		Describe an expression for specific energy output on a level track using a simplified speed time curve.	14M

Q.P. Code: 1803702 | SET - 1

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B. Tech. VII Semester (R18) Regular Examinations of January – 2022

SUB: Finite Element Methods (ME)

Time: 3 Hours **Max. Marks: 70**

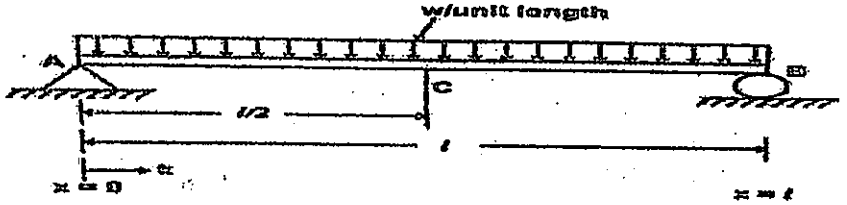
Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT – I

1. (a) Write applications of FEM. 2M
   (b) The following differential equation is available for a physical phenomenon, $d^2y/dx^2 - 300x^2 = 0$, $0 \le x \le 1$ with boundary conditions as $y(0) = 0$ and $y(1) = 0$. Find the solution of the problem using a one coefficient trial function as $y = a_1 x (1-x^3)$. Use (i) Least square method, (ii) Galerkin's method. 12M

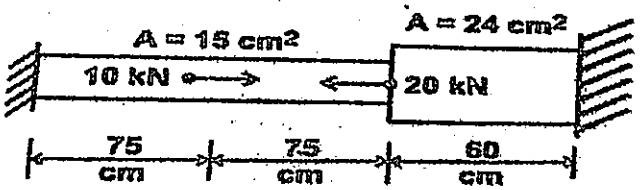
(OR)

2. (a) Explain the step by step procedure of FEA. 4M
   (b) Find the deflection at the centre of a simply supported beam of a span length 'l' subjected to uniformly distributed load throughout its length as shown in figure. Using trigonometric series- one term trial function in Rayleigh Ritz method? 10M



UNIT – II

3. For a stepped bar loaded as shown in figure. Determine (a) nodal displacements (b) support reactions (c) element stresses. $E = 20X10^6 N/cm^2$, $\Delta T = 10^0 C$, $\alpha = 11x\ 10^{-6}$ cm/cm ^0C. 14M



(OR)

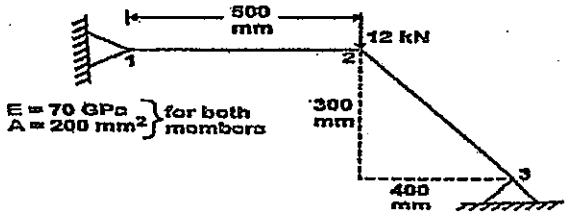
4. (a) Write short notes on simplex, complex and multiplex elements. 4M
   (b) Derive an expression for stiffness matrix by using direct method? 10M

UNIT – III

5. (a) Derive an expression for stiffness matrix by using strain energy method for a truss element? 7M
   (b) Derive an expression for Hermite shape function? 7M

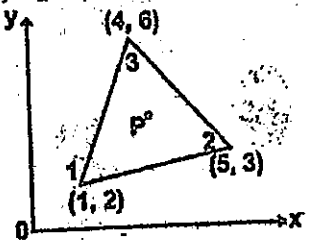
(OR)

6. For the two-bar truss as shown in figure. Determine the displacements at node 2 and the stresses in both elements. 14M



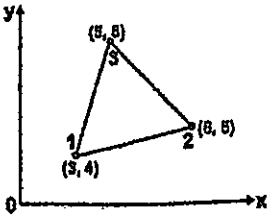
UNIT – IV

7. (a) Derive the expression for shape function for 2D linear element (CST) element? 7M
   (b) The nodal coordinates of the triangular elements are as shown in fig. At the interior point P, the y-coordinate is 4.2, $N_2 = 0.2$. find N_1, N_3 and x-coordinate. 7M



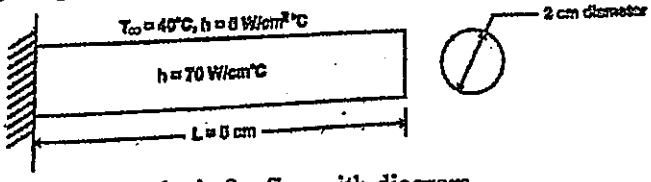
(OR)

8. (a) Derive the strain displacement matrix of a constant strain triangular element from first principles. 7M
   (b) Compute the strain-displacement matrix for the element shown in figure. Also determine the element strains. 7M



UNIT-V

9. (a) Find the temperature distribution in a straight fin with the physical properties as shown in figure. The thermal conductivity k=70W/cm^{0}C, convection heat transfer coefficient h=10W/cm^2°C. Temperature at the root of the fin To=140°C, t∞=surrounding temp=40°C. Assume that the free end of the fin is insulated. 10M



   (b) Discuss the heat transfer analysis for fins with diagram. 4M

(OR)

10. (a) Derive the expression for thermal stiffness matrix for 1-D heat conduction with lateral surface convection with internal heat generation? 10M
    (b) What is meant by steady state heat transfer? Write down its governing differential equation? 4M

Q.P. Code: 1804702 | SET - 1

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B. Tech. VII Semester (R18) Regular Examinations of January – 2022

SUB: Electronic Measurements and Instrumentation (ECE)

Time: 3 Hours **Max. Marks: 70**

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT – I

1.	(a)	How do we determine the performance characteristics (static & dynamic) of an instrument?	7M
	(b)	Explain different types of errors that occur in measurements.	7M
		(OR)	
2.	(a)	List out different DC voltmeters and explain any one voltmeter in detail.	7M
	(b)	Explain the operation of Harmonic Distortion Analyzer.	7M

UNIT – II

3.	(a)	Discuss the working principle of Q-meter &its applications.	7M
	(b)	Write short note on interference &explain noise reduction techniques.	7M
		(OR)	
4.		Explain any Two ac bridges to measure unknown inductance.	14M

UNIT – III

5.	(a)	Explain the vertical amplifier section of CRT along with block diagram.	10M
	(b)	Discuss about important CRT features.	4M
		(OR)	
6.		Draw the neat diagrams of both vertical & horizontal deflection systems and explain briefly about their working.	14M

UNIT – IV

7.	(a)	Explain the working principle of tachometer.	7M
	(b)	Explain the working principle of Digital Phase meter	7M
		(OR)	
8.	(a)	Explain in detail about digital voltmeter.	7M
	(b)	Describe advantages of DVM over an analog meter.	7M

UNIT-V

9.	(a)	With a neat sketch explain the operation of LVDT. What are the advantages & disadvantages?	10M
	(b)	Define piezoelectric effect. Write the applications of piezoelectric transducer.	4M
		(OR)	
10.	(a)	Draw the diagram of Resistance Thermometer & explain briefly.	7M
	(b)	Distinguish between the active & passive transducers.	7M

Q.P. Code: 1805702 | SET - 1

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B. Tech. VII Semester (R18) Regular Examinations of January – 2022

SUB: Big Data Technologies (CSE)

Time: 3 Hours **Max. Marks: 70**

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT – I

1.	(a)	What is Big Data? Why big data is important?	7M
	(b)	Write short note on Hadoop ecosystem.	7M
		(OR)	
2.	(a)	Differentiate Hadoop with RDBMS.	7M
	(b)	Write an installation of Hadoop with standalone mode.	

UNIT – II

3.	(a)	Define block in HDFS. Why is a Block in HDFS So Large?	7M
	(b)	Explain use of HDFS federation.	7M
		(OR)	
4.	(a)	Accessing HDFS over HTTP directly, and via a bank of HDFS proxies	7M
	(b)	Explain Parallel Copying with distcp.	7M

UNIT – III

5.	(a)	Explain analysis of data using Unix tools.	7M
	(b)	Explain MapReduce Logical data flow of weather data set using Hadoop.	7M
		(OR)	
6.		Explain Configuring the Hadoop Development Environment.	14M

UNIT – IV

7.		How Hadoop runs a MapReduce job using the classic framework? Explain with neat sketch.	14M
		(OR)	
8.		Explain Task Counters and Job Counters.	14M

UNIT-V

9.	(a)	Write installation steps of Hive.	7M
	(b)	Compare Hive with Traditional Data Bases.	7M
		(OR)	
10.	(a)	Explain how load data from HDFS into HBase table.	10M
	(b)	What are the uses of pig.	4M