Subject Code: 1801701 (R – 18)

K S R M College of Engineering (Autonomous), KADAPA – 516 003
B. Tech 7th Semester Regular Examinations, 2021
Engineering Economics Estimation & Costing
(Civil Engineering)

Time: 03:00 Hrs. Max. Marks: 70

Note: All questions will carry equal marks

Unit – 1

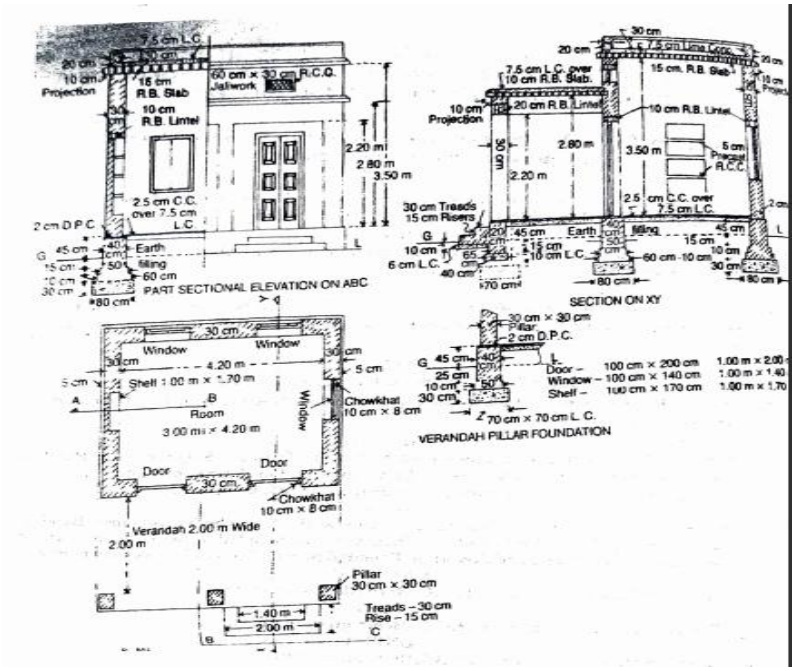
1	a	What are the detailed specifications of Foundation concrete and mortars?	7 Marks
	b	What are the standard specifications of brick work?	7 Marks
		Or	
2		Explain briefly on Types of Estimates?	7 Marks
		Explain briefly on Method of estimates?	7 Marks

Unit – 2

3	a	Prepare a rate chart for half Brick wall of length 10 m and height 5 m, use 1:3 mortar for joints.	10 Marks
	b	Write a short note on plastering and pointing?	4 Marks
		Or	
4	a	Prepare a rate chart for Cement Concrete flooring of area 50 Sq. m. Use M15 concrete.	10 Marks
	b	Write a short note on mosaic flooring.	4 Marks

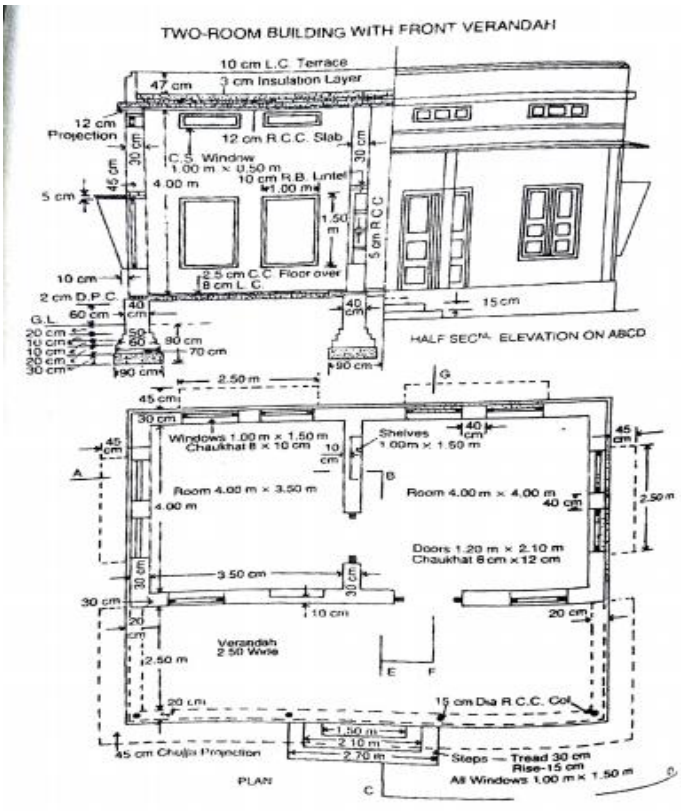
Unit – 3

5		Estimate the quantities of following item of works from the Single-roomed building shown in Fig. below a) Earthwork in Excavation in foundation, b) Lime concrete in Foundation, c) 1" class brickwork in superstructure in lime mortar.	14 Marks



Or

6 Estimate the quantities of following item of works from the Two-roomed Building shown in Fig. below i) Earthwork in Excavation in foundation, ii) Lime concrete in foundation, iii) 1* class brickwork in Foundation and Plinth inl:6 cement mortar. 14 Marks



Unit – 4

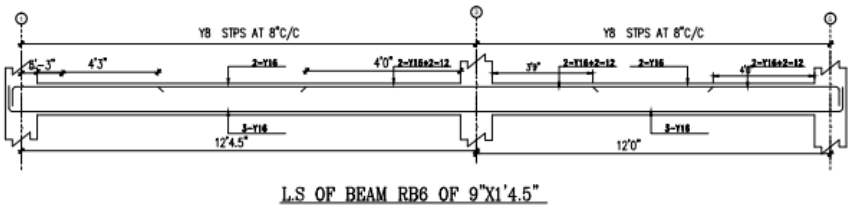
7 Estimate the quantity of steel required for a R.C.C (1:2:4) slab 130 mm thick provided for a room 3.25 m X 7.5 m, resting over a 300 mm thick walls. — 14 Marks

Reinforcement details:

Main reinforcement: 10mm ø bars at 160 mm c/c (alternate bars are bent-up). Distribution reinforcement: 8mm ø at 200 mm c/c. Also prepare the bar bending schedule.

Or

8 Estimate the quantity of steel required for the structural element shown in figure below — 14 Marks



L.S OF BEAM RB6 OF 9"X1'4.5"

Unit – 5

9 a What are the types of contract? Briefly explain them. — 7 Marks

b List the contract documents and explain them. — 7 Marks

Or

10 a Explain the different methods of valuation of building — 7 Marks

b Lit the various items of works for valuation of building. — 7 Marks

Subject Code: 1801702R – 18

K S R M College of Engineering (Autonomous), KADAPA – 516 003

B. Tech 7th Semester Regular Examinations, 2021

Design & Detailing of Reinforced Concrete Structures – 2

(Civil Engineering)

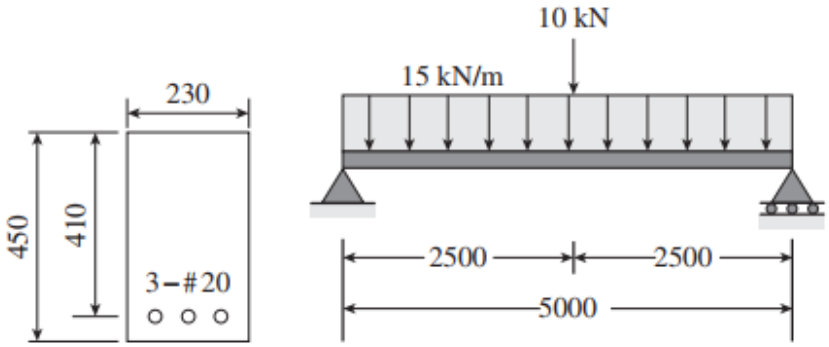
Time: 03:00 Hrs. **Max. Marks: 70**

Note: All questions will carry equal marks
Choose any one question from each unit

Unit – 1

1 A simply supported beam as shown in Fig. 1 is made of M20 grade concrete and is reinforced with three 20 mm bars of Fe 415 grade steel. If it is subjected to an imposed load of 15kN/m and a concentrated dead load of 10 kN at midspan, calculate the short-term deflection due to live loads alone. 14 Marks

Fig:1



Or

2 a Explain in detail about Load–Deflection Behaviour of RC Beam 4 Marks

b A three-span continuous beam of rectangular section 250 mm by 500 mm, each 5 m span, is provided with three 16 mm bars at support and two 16 mm bars and one 12 mm bar at mid-span. The beam is subjected to a live load of 15kN/m and is made of M25 concrete and Fe 415 steel. Compute the deflection at service loads. 10 Marks

Unit – 2

3 Design a transversely spanning waist slab-type staircase with a straight flight supported by two stringer beams along the two sides. Assume an effective span of 1.35 m, a riser of 150 mm, and a tread of 300 mm. Assume imposed load of 4kN/m^2. Use M25 concrete and Fe 415 steel. Assume mild exposure. 14 Marks

Or

4 Design a helicoidal stair for a building with floor height 4 m. The width of stair is 1.2 m and the tread and riser are 280 mm and 200 mm, respectively. Assume imposed load of 4KN/m^2. The included angle of the stair is 180°. There is a mid-landing of 1.2 m length. The building is used for commercial purposes and subjected to mild exposure. Use M25 concrete and Fe 415 steel. 14 Marks

Unit – 3

5 a Design of braced plain concrete wall of 3 m high and 4 m in length between cross walls, carries a factored load of 400 kN/m width through a floor at the top. Assuming that there are no openings in the wall, design the wall, considering M20 concrete and Fe 415 steel. 7 Marks

	b	Design of braced RC wall subject to shear and axial loads, having 6 m tall concrete wall, 4 m long and 200 mm thick. Assume that it is restrained against rotation at its base and unrestrained at the other ends. If it has to carry a factored vertical load of 400 kN and a factored horizontal load of 10 kN at the top, design the wall. Assume M20 concrete and Fe 415 steel	7 Marks
		Or	
6		A cantilever-retaining wall is required to retain earth 3.8 m high above the ground level. The backfill surface is inclined at an angle of 15^0 with the horizontal and the backfilled soil has a unit weight of 18 kN/m^3 and an angle of internal friction of 30. The exposure condition is moderate. Assume that the SBC of soil is $150kN/m^2$ and that the coefficient of friction between the soil and concrete is 0.5. Design the RC retaining wall.	14 Marks
		Unit – 4	
7	a	Design an isolated footing for a square column of size 400 mm x 400 mm, supporting a service load of 2200 kN on a Concentrically loaded square footing. Assume SBC of soil as $250kN/m^2$ at a depth of 1.5 m below the ground. Use M20 concrete and Fe 415 steel for the footing and M30 concrete and Fe 415 steel for the column. Assume that the column is reinforced with eight 25 mm bars.	14 Marks
		Or	
8		Design of pile cap for an RC column of size 500 mm x 500 mm is supported on four piles of 300 mm diameter (bored cast in situ piles). The column carries a load of 1000 kN, a moment of 300 kNm in the *x-x* direction, and a shear force of 50 kN on top of the pile. Design the pile cap assuming M25 concrete and Fe 415 steel. Further, assume that the piles are capable of resisting the reaction from the pile cap.	14 Marks
		Unit – 5	
9		Design a circular water tank with flexible connection at base for a capacity of 4, 00,000 liters. The tank rests on a firm level ground. The height of tank including a free board of 200 mm should not exceed 3.5m. The tank is open at top. Use M 20 concrete and Fe 415 steel. Draw to a suitable scale: (i) Plan at base (ii) Cross section through centre of tank.	14 Marks
		Or	
10		Design an R.C. tank of internal dimensions 10mx3mx3m.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 300 and in wet state is 6^0. Adopt suitable working stresses. Soil weights 20 kN/m^3.Adopt M20 concrete and Fe 415 grade steel.	14 Marks

Subject Code: 1801703 **R 18**

K S R M College of Engineering (Autonomous), KADAPA – 516 003

B. Tech VII Semester - Regular Examinations, 2021 - Model Question Paper

Sub: DESIGN OF STEEL STRUCTURES

(Civil Engineering)

Time: 03:00 Hrs. **Max. Marks: 70**

Answer any FIVE Questions choosing One Question from each Unit.
All Questions carries equal marks

Note: IS 800-2007 & Steel Tables are Permitted in the Examination Hall.

Unit-I

1. (a) Explain Upper & Lower bound Theorems. 7M
(b) Explain about types of mechanisms with suitable examples. 7M

Or

2. A Groove weld is to connect two plates 180 x18 mm each, determine the design bending strength of the joint if it is subjected to a moment of 13 KNM. Also determine the adequacy of the joint if the shear force at the joint is 200 KN. Assume the welds to be of double U- shop welded. Take Fe410 Grade steel and f_y = 250N/ mm^2. 14M

Unit-II

3. Determine the effective net area of double angle section 90x60x8mm is connected to a Gusset plate 12 mm in thickness for the following data. 14M

Diameter of bolts = 16 mm
Number of bolts = 6
Pitch of bolts = 40 mm
Edge distance of bolts = 30 mm

What will be the effective net area if the angles are connected?

(i) Angles are connected on opposite sides of Gusset plates
(ii) Double angles on the same side of gusset plate

Or

4. Design a Laced steel column 8 m long to carry a factored axial load of 1000 KN. The column is restrained in position but not in direction at both ends. Provide a single Lacing system with bolted connections. Sketch the elevation and plan of the column. 14M

Unit-III

5. A simple supported steel beam of 4 m effective span is laterally supported through out. It carries a total UDL of 40 KN (inclusive of self wt). Design an appropriate section using steel grade Fe410 & f_y = 250 N/ mm^2. 14M

Or

6. Design a laterally Un supported beam for the following data 14M

Effective span-4m
Max bending moment: 550 KNm
Max Shear force: 200 KN
Steel Grade: Fe 410
Shear modulus: 76.923 x 10^3 N / mm^2

Unit-IV

7. 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

Or

8. Design a stiffened seat connection for an ISMB 350@ 514 N/m transmitting an end reaction of 320 KN 14M

(Due to factored loads) to a column section ISHB 300@ 576.8 N/m. The steel is of grade Fe 410 and bolts of grade 4.6

Unit-V

9. A column ISHB@ 661.2 N/m carries an axial compressive factored load of 1700 KN. Design a suitable bolted Gusset base. The base rests on M 15 Grade concrete Pedestal. Use 24 mm diameter bolts of grade 4-6 for making the connections. 14M

Or

10. A column section ISHB 450 @ 907.4 N/m is subjected to the following factored loads 14M

Axial compressive loads (P) = 500 KN

Moment (M) =1000 KNm

Assuming M 30 Grade concrete for the pedestal and a square base plate; Design the following

(a) Thickness of base plate

(b) Anchor bolts, welds

Subject Code: 1801704 **R 18**

K S R M College of Engineering (Autonomous), KADAPA – 516 003

B. Tech VII Semester - Regular Examinations, 2021 - Model Question Paper

Sub: WATER RESOURCES ENGINEERING - 2

(Civil Engineering)

Time: 03:00 Hrs. **Max. Marks: 70**

Answer any FIVE Questions choosing One Question from each Unit.

All Questions carries equal marks

UNIT - I

1. What is a spillway? What are its functions? Enumerate various types of spillways.

(OR)

2. Discuss various methods used for energy dissipation below spillways.

UNIT - II

3. What do you understand by a fall in a canal? How do you select in location? Write a note on notch type fall.

(OR)

4. Explain the procedure of designing Sarda type fall.

UNIT - III

5. What are the functions of Regulators? Explain the design procedure of head Regulator of a distributary.

(OR)

6. Write down the requirements that an outlet should fulfill. Derive an expression for the flexibility of an outlet.

UNIT - IV

7. Describe with the help of sketches various types of cross drainage works.

(OR)

8. Write a note on selection of suitable type of cross drainage works.

UNIT - V

9. Discuss functional requirements in multipurpose projects.

(OR)

10. Outline the steps required to prepare a plan for water resources development.

Sub Code: 1801705 **R 18**

K.S.R.M COLLEGE OF ENGINEERING, KADAPA, (Autonomous)
B. Tech VII (R18) Model Question Paper - 2021
Sub: Sanitary Engineering & Solid waste management
CIVIL ENGINEERING

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

Note: Answer Any FIVE Questions choosing one question from each Unit.
All Questions carry Equal Marks.

UNIT – I

1. **(a)** Describe briefly about Separate and Combined Sewers and their Merits and Demerits ? 8M
   (b) Design the section of a combined circular sewer for full flow from the, Given data below: 6M
   Area to be served = 150 Hectares; Population of the Locality = 50,000
   Minimum Permissible Velocity = 3.2 m/sec; Time of entry = 5 min.
   Time of flow = 20 min; Impermissibility Factor =0.45.
   Assume that 75% of water supplied converts into sewage.

(OR)

2. **(a)** Define Sewer Apputenances ? Write a short notes on Catch pits and Inlets ? 7M
   (b) A City with a population of 2 Lakhs has an area of 600 hectares out of which 80 hectares are zoned commercial and 80 hectares are zoned Industrial . The avarege water consumption is 150 LPCD & 70 % of water reached to the sewer. On the basis of sewer gaging the average flow from the commercial flow is 7,50,000 lit per day and peeking factor is 1.75, using an industrial allowance 49,000 lit per hectare per day with peak factor of 1.8. Estimate average & peak waste water flow rates. Also determine the overall peeking factor. Assume ground water infiltration as 2500 lit per hectare per day with a peeking factor of 1.6. 7M

UNIT –II

3. (a) If 5day BOD at 20^{O}C is 200 mg/L. Then Find the 3day BOD at 15^{o} C and 8 day BOD at 30^{o} C. Take K_{20} 0.23/DAY (base e). 9M
   (b) Describe about Screens and its Classification? 5M

(OR)

4. (a) Briefly discuss the factors considered for the design of Grit chamber? 6M
   (b) Find the no of openings and no of bars required for a screen device to pass 25 MLD water with approach velocity 1 m/sec. Assume depth of flow as 0.9m, size of opening as 25 mm, diameter of bar as10mm.Find the Head loss through Screen, if it is provided at an angle of 60^{o} the horizontal. 8M

UNIT – III

5. (a) Draw and explain about the Oxidation Pond? 6M
   (b) Design a Oxidation Pond to treat 2 MLD sewage at temperature of 30^{o}C with inlet BOD of 300 mg/l. The efficiency of BOD is 85%. Assume rate of constant at 20^{o}C. 8M

(OR)

6. (a) A sedimentation Tank is treating 4.5 MLD of sewage containing 275 ppm of suspended solids. The removes 55% of the suspended solids. 6M

Calculate
i). Weight of sludge produced per day assuming moisture content of sludge as 96%
ii). If specific Gravity of the sludge is 1.02, Calculate sludge quantity in bulk (Volume).

(b) With a neat sketch, explain in detail the activated sludge process in waste water treatment 8M

UNIT - IV

7. (a) Describe design of Septic tank with neat sketch? 8M
(b) Design a septic tank for a colony of 100 people. The colony is supplied water at a rate of 125 liters/person/day. Assume a detention period of 36 hours and 70% of the water becomes waste water. The tank is cleaned once in a year .The rate of deposition of sludge is 45 liters/person/year. Depth of tank is to be kept as 2.0m. Provide a free board of 0.3m. L/B ratio may be kept as 3:1. 6M

(OR)

8. Discuss various methods of sludge stabilization by Aerobic and Anaerobic process 14M

UNIT –V

9. With neat sketch, show the major components of landfill. How do you decide a location to put a landfill and what are the criteria to considered for locating it? 14M

(OR)

10. (a) Explain briefly the global effects of air pollution 7M
(b) What are the environmental impacts of noise pollution? 7M

Subject Code: 1801710 **R 18**

K S R M College of Engineering (Autonomous), KADAPA – 516 003

B. Tech VII Semester - Regular Examinations, 2021 - Model Question Paper

Sub: Construction Project Planning and Systems

(Civil Engineering)

Time: 03:00 Hrs. **Max. Marks: 70**

Answer any FIVE Questions choosing One Question from each Unit.

All Questions carries equal marks

UNIT-I

1. a) Explain what are the functions of a construction manager (8 Marks)
   b) What are the major problems encountering in construction industry (6 Marks)

(Or)

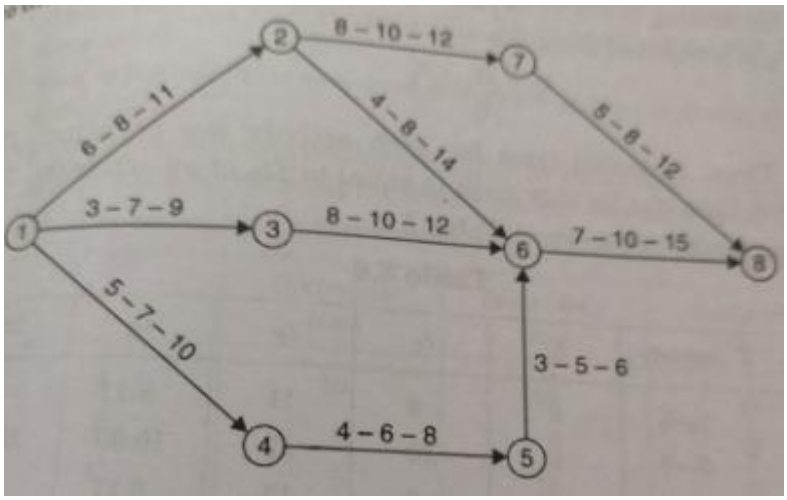
2. a) What are the stages of construction management (10 Marks)
   b) How resources are influencing construction industry (4 Marks)

UNIT-II

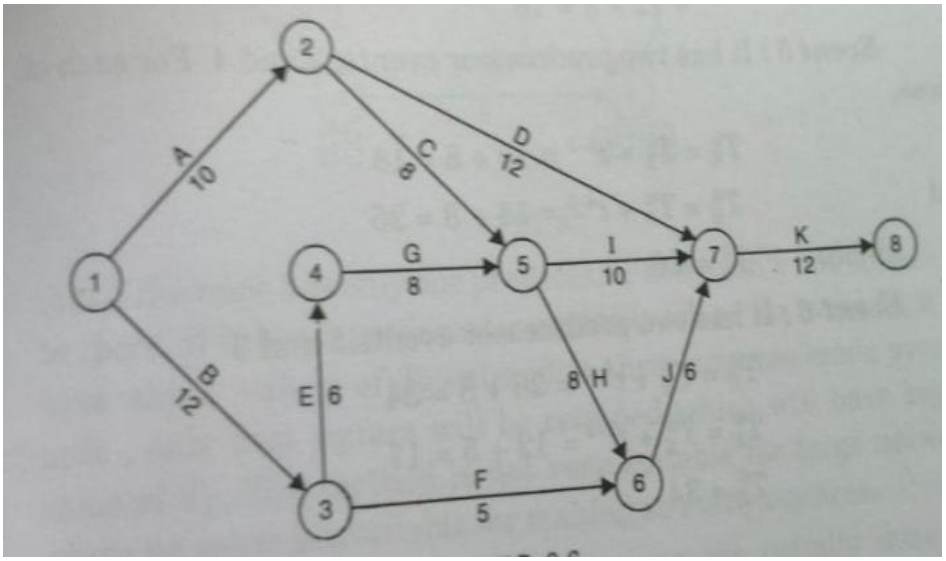
3. a) Explain the significance of breakdown of structures and draw pictorial representation of RCC work (8 Marks)
   b) Define float and explain all types of floats (6 Marks)

(Or)

4. a) Estimate the timings, Find critical events and critical path using PERT (6 Marks)



   b) Calculate EST, EFT, LST and LFT for all activities, identify critical events and critical path with CPM (8 Marks)



UNIT-III

5. a) Explain working principle and advantages of hauling Equipment (7 Marks)
   b) List out Earth moving equipment and Explain advantages of Shovels (7 Marks)

(Or)

6. a) Explain efficiency of pumping and dewatering equipment (8 Marks)
   b) How does usage of equipment in construction industry (6 Marks)

UNIT-IV

7. a) What are the principles followed to maintain quality in construction (7 Marks).
   b) What are the causes of accidents in construction (7 Marks)

(Or)

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

UNIT-V

9. a) Explain the significance of departmental execution (6 Marks)
   b) Explain two significant aspects of EMD and Security Deposit (8 Marks)

(Or)

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

Subject Code: 1801711 **R 18**

K S R M College of Engineering (Autonomous), KADAPA – 516 003

B. Tech VII Semester - Regular Examinations, 2021 - Model Question Paper

Sub: Environmental Impact Assessment

(Civil Engineering)

Time: 03:00 Hrs. **Max. Marks: 70**

Answer any FIVE Questions choosing One Question from each Unit.

All Questions carries equal marks

Unit-I

1. What is an EIA? What are the factors effecting EIA and explain the process along with impact evaluation and analysis? 14 M

Or

2. Prepare an environmental base map and explain the classification of environmental parameters? 14M

Unit-II

3. What are the criteria's for selecting EIA and explain the Methodology? 14M

Or

4. What is environmental medium quantity index, explain the cost / benefit analysis, with a detail example? 14M

Unit-III

5. Explain the methodology for assessment of soil and ground water with a case study?14M

Or

6. What is the methodology for assessment of surface water environment, air pollution sources and explain the detail methodology for assessment of air pollution impact?14M

Unit-IV

7. Explain the assessment of impacts of development on vegetation and wildlife, and causes with a case study? 14M

Or

8. Explain the detail procedure of environmental audit? 14M

Unit-V

9. Explain the EPA act, Water Prevention act and Pollution acts of the Government? 14M

Or

10. Explain the preparation of environmental impact assessment statement for various industries? 14M

Code: **1802702**

K.S.R.M. College of Engineering (AUTONOMOUS) - Kadapa

B.TECH VII-SEM (R18) MODEL QUESTION PAPER

BRANCH: Electrical & Electronics Engineering

Sub: Utilization of Electric Power

Time: 3 Hrs **Marks: 70**

Note: Answer any **FIVE** Questions choosing one Question from each unit

All Questions carry Equal Marks

UNIT-I

1. a) State the laws of illumination. Explain the laws with the help of suitable diagrams and derive an equation of the same?
   b) Define the terms i) Luminous flux ii) Luminous intensity iii) Illumination v) Brightness?

(OR)

2. a) With the help of neat diagram explain the principle of operation of incandescent lamp?
   b) A drawing hall with an area of 18*12 m. is to be illuminated with an average illumination of 150 lux. The lamps are to be fitted at 6m height. Find out the number and size of incandescent lamps required for an efficiency of 20 lumens/watt, UF=0.6, MF=0.75?

UNIT-II

3. a) Describe briefly the methods of direct and indirect resistance heating and list the applications of these two methods?
   b) A 4.5 KW,200V and 1-phase resistance oven is having nichrome wire heating element. If the wire temp is to be 1000^0 c and of the charge is 500^0 c . Estimate the diameter and length of the wire, The resistivity of the nichrome alloy is 42.5 μohm -meter .Assume the radiating efficiency and the emissivity of the element is 1.0 , 0.9 respectively?

(OR)

4. a) Describe the following resistance welding process i) Spot welding ii) seam welding iii) butt welding iv) projection welding.
   b) Describe the various types of various types of electric arc welding process.

UNIT-III

5. a) What is electric drive? What are its advantages? Compare a group drive and an individual drive.
   b) Explain what is mean by Load equalization and how it is accomplished?

(OR)

6. a) Explain various methods of speed control of AC motors.
   b) Discuss the running characteristics of any two electric motors?

UNIT-IV

7. a) Compare the pure AC and DC traction systems with different aspects.
   b) What are the special features of traction motors?

(OR)

8. Describe how plugging, rheostat breaking, regenerative breaking are employed with DC series motors.

UNIT-V

9. a) With the help of trapezoidal speed time curve derive an expression for the maximum speed and estimate the value of acceleration and retardation.
   b) The tractive effort for propulsion of a train up and down gradient.

(OR)

10. Describe an expression for specific energy output on a level track using a simplified speed time curve.

Code: 1802704

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

B.TECH VII-SEM (R18) MODEL QUESTION PAPER

BRANCH: Electrical & Electronics Engineering

SUBJECT: POWER QUALITY

TIME: 3HOURS **MAX.MARKS:70M**

NOTE: Answer **FIVE** of the following
Choosing one from each unit.

	Unit-I	
1.	a) Explain the power Quality Evaluation Procedure?	(8M)
	b) Draw and explain CBEMA and ITI curves in detail.	(6M)
	OR	
2.	What is Power Quality? Explain in detail different power quality issues.	(14M)
	Unit-II	
3.	a) Define and explain about transients?	(7M)
	b) Explain the important causes of voltage sags?	(7M)
	OR	
4.	Explain briefly about transient over voltages due to lightning?	(14M)
	Unit-III	
5.	a) Explain in detail how harmonics are generated from Industrial loads?	(8M)
	b) What are the causes of harmonics in power system?	(6M)
	OR	
6.	a) What are harmonics? What are its effects on different electrical equipments?	(8M)
	b) Define and explain total harmonic distortion.	(6M)
	Unit-IV	
7.	Describe the process of power quality Bench marking? in detail.	(14M)
	OR	
8.	a) Explain about various power quality measuring equipment?	(7M)
	b) What are the main objectives of power quality monitoring?	(7M)
	Unit-V	
9.	Explain the following. a) Solid State Current Limiter	(7M)
	b) Solid State Breaker	(7M)
	OR	
10.	Explain the following a) Dynamic Voltage Restorer	(7M)
	b) Unified Power quality Conditioner	(7M)

Subject Code: 1803701

K.S.R.M COLLEGE OF ENGINEERING, KADAPA

B.TECH VII SEM(R18) REGULAR EXAMINATIONS-Dec 2021

Subject: CAD/CAM

Model Question Paper

Time:3Hrs **Max Marks:70**

Answer Any Five Questions. Choosing one Question from each unit.

All Questions Carries Equal Marks

Unit-I

1)a) What are Fundamentals of CAD 7M

b).What are Applications of computers for design benefits of CAD 7M

(OR)

2)a)List Various Computer peripherals for CAD 7M

b).Explain Design Work station and Graphics Terminals 7M

Unit-II

3.Explain concepts of Translation, rotation, Scaling and Mirror Reflection? 14M

(OR)

4). Find a Transformation of Triangle A(1,0),B(0.1),C(1,1) by

a). Rotating 45° about the origin and then translations one unit in x and y direction. 7M

b). Translation one unit in x and y Direction and then rotating 45° about the origin 7M

Unit-III

5.Explain Wire Frame ,Solid and Surface modelling 14M

(OR)

6).a).What is Bezier curve and its properties 7M

b). Explain B-rep solid modeling and constructive solid geometry? 7M

Unit-IV

7).a).What is Group Technology and Explain Concepts of GT? 7M

b).Explain Classification and coding system and Advantages of GT 7M

(OR)

8).a) What is Flexible manufacturing systems and Need For FMS? 7M

b) What are Applications of robots in manufacturing and material handling 7M

Unit-V

9). What is Computer Aided Process Planning and Explain Variant and Generative CAPP Systems 14M

(OR)

10). a) Explain concepts of automatic identification methods 7M

b) What is Bar Coding Technology concepts and its uses 7M

Q.P CODE:1803702

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

VII Sem (R18)Final Examinations, DEC-2021

Subject: Finite Element Methods

(*Mechanical Engine*ering)

MODEL QUESTION PAPER

Time: 3hrs. **Max marks: 70**

Note: Answer Any Five questions. Choosing one from each unit.

All questions carry Equal marks

UNIT-1

1).a). Explain the step by step procedure of FEA. (4M)

b).The following differential equation is available for a physical phenomenon, $d^2y/dx^2 - 10x^2 = 5$, $0 \le x \le 1$with boundary conditions as y (0) = 0 and y (1) = 0. Find an approximate solution of the above differential equation by using Galerkin's method of weighted residuals and also compare with exact solution. (10M)

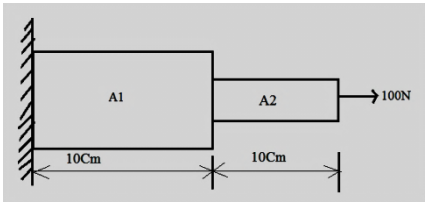
(OR)

2).Consider the differential Equation for a problem such as $\frac{d^2y}{dx^2} + 300\,x^2$; $0 \le x \le 1$ with in the boundary conditions y(0) = y(1) =0, the functional corresponding to this problemto be Extremized is given by $I=\int_0^1 \left\{\frac{1}{2}\left(\frac{dy}{dx}\right)^2 + 300x^2y\right\} dx$ .Find the solution of the problem using Ralyeigh Ritz method using a one term trial solution as y=a $x(1-x^3)$

UNIT-2

3). Deduce the stiffness matrix for a 1D two noded linear elementand Show that in what way the global stiffness matrix differs from element stiffnessmatrix?(4M)

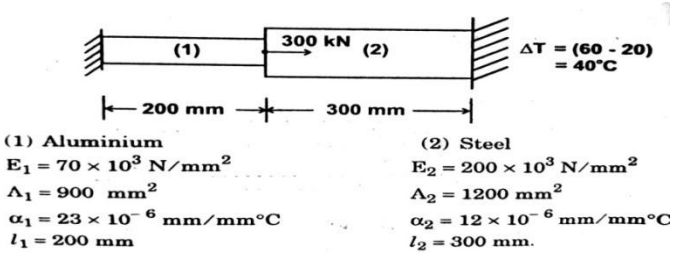
b) Consider a bar as shown in fig. Young's Modulus E= 2 x 105 N/mm^2. A1 = 2cm^2, A2 = 1cm^2 and force of 100N. Calculate the nodal displacement.(10M)



(OR)

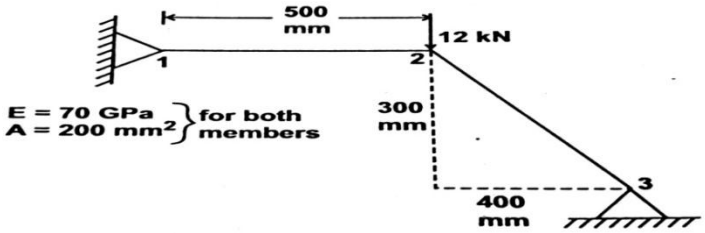
4).An axial load of 3×10N is applied at 20°C to the rod as shown in Fig.This temperature is then raised to 60°C.Calculate the following;

Assemble the K and F matrices (b) Nodal displacements c) Stresses in each material (d) Reactions at each nodal point (14M)



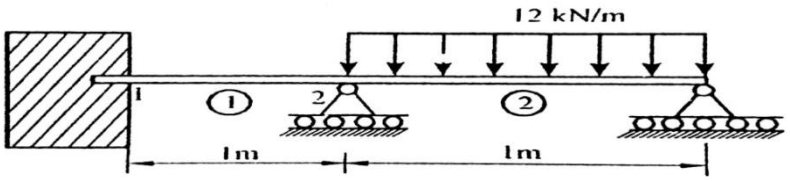
UNIT-3

5). For the Two bar Truss shown in figure, determine the displacements of node 2 and the stress in both elements(14M)



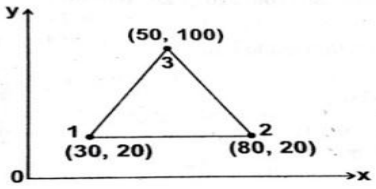
(OR)

6). Solve for vertical deflection and slopes, at point 2 and 3, using beam elements for the structure shown in figure. Also determine the deflection at the centre of the portion of the beam carrying UDL. E=200 GPa, I=4x10^6 mm^4



UNIT -4

7).For the plane stress element shown in figure,Evaluate the stiffness matrix. Assume modulus of elasticity E=210x10^3 N/mm^2. Poisson's ratio μ=0.25 and element thickness t=10 mm .The coordinates are given in mm. (14M)



(OR)

8).Derive temperature function (T), shape Function (N) and Stiffness matrix for one dimensional Heat conduction. (14M)

UNIT-5

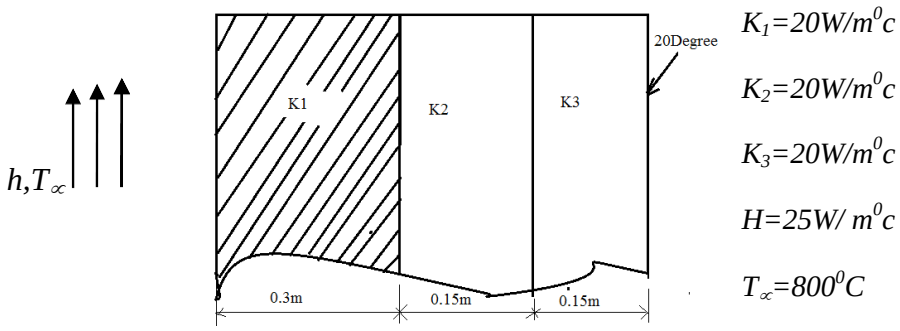
9). Explain the following Terms(14M)

a).Iso Parametric element b).Super parametric element

c).Sub parametric element d).Axi symmetric element

(OR)

10). A composite wall consists of three material as shown below. The outer temperature is $T_0=200^0C$.Convection heattransfer takes place on the inner surface of the wall with T $=800^0C$ and h=25W/m^0C.Determine the temperature distribution in the wall.



$K_1=20W/m^0c$

$K_2=20W/m^0c$

$K_3=20W/m^0c$

$H=25W/\ m^0c$

$T_\infty=800^0C$

Code: 1803703

R 18

K.S.R.M COLLEGE OF ENGINEERING, KADAPA (AUTONOMOUS)
B.Tech VII semester (R18) Regular Examinations, November 2021
QUALITY ENGINEERING MANAGEMENT
(Mechanical Engineering)
MODEL QUESTION PAPER

Time: 3 hrs **Max Marks:70**

Answer five questions. Selecting one Question from each unit
All Questions carry equal marks

UNIT -I

1. (a) What is service quality Management. 4M
   (b) Explain different quality characteristics for service. 10M

(OR)

2. What do you mean by quality cost and discuss the different types of quality cost. 14 M

UNIT -II

3. **(**a)Define Statistical Process control. 4M
   (b)Explain the various types of Quality control charts with suitable example. 10M

(OR)

4. (a) Define process capability and process capability index . 4M
   (b) Explain the design of single and double sampling plans. 10M

UNIT- III

5. Discuss the various types of Quality Loss function with appropriate examples. 14M

(OR)

6. (a) Differentiate between variable and attribute characteristics. 7M
   (b) Explain the concept robust parameter design. 7M

UNIT- IV

7. With a suitable QFD matrix in detail explain the Quality function deployment. 14 M

(OR)

8. (a) Write short notes on Failure Data Analysis. 6M
   (b) Explain the concept of reliability prediction based on weibull distribution. 8M

UNIT-V

9. (a) Differentiate between reliability of series and parallel systems. 7M
   (b) Discuss in detail about complex and stand by system reliability. 7M

(OR)

10 (a) What are the effects of Maintenance and also mention its importance. 7M
   (b) Explain the objective of reliability and four important elements of reliability. 7M

Code: 1803704 **R 18**

K.S.R.M COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA
VII semester (R18) Regular Examinations, DEC-2021
PRODUCTION AND OPERATIONS MANAGEMENT (ELECTIVE III)
(Mechanical Engineering)
MODEL QUESTION PAPER

Time: 3 hrs **Max Marks: 70**

Answer five questions. Select one Question from each unit
All Questions carry equal marks

Unit-I

1. Define production system .Explain various components of production system (14M)

(OR)

2 a) Explain flexible manufacturing system (7M)
b) Explain principles of lean manufacturing system (7M)

Unit-II

3. a) State the objectives of forecasting (4M)
b) For the data given in Table1 determine the best line of fit and determine the forecast for 8th and 9th year and also determine coefficient of determination and standard deviation

Table 1: Sales data

Year	1	2	3	4	5	6	7
Sales of books in 000's	14	17	15	23	18	22	27

(10M)

(OR)

4) a Explain various strategies ,costs and methods in aggregate production planning (14M)

Unit-III

5. Explain various types of layouts (14)

OR

6. Assembly of a job should be done as per the information given in Figure 1 and the cycle time is 45 seconds. Calculate number of workstations and balance delay using RPW method.

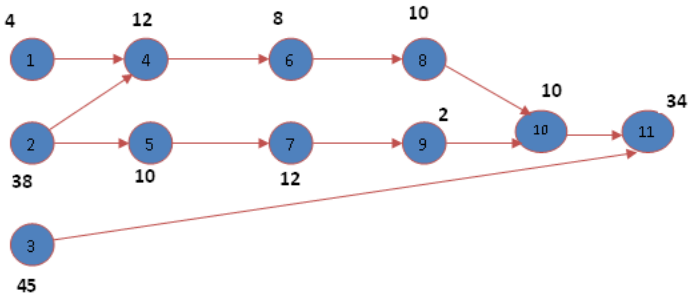


Figure1: Precedence diagram

Unit-IV

7. (a) Explain various costs of inventory? (4M)

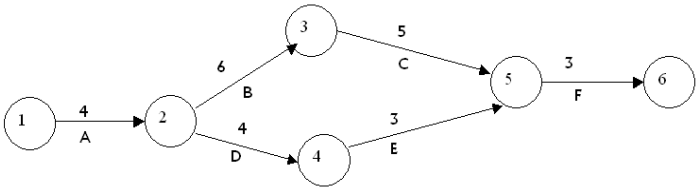
(b) Given the data for an item of uniform demand, instantaneous delivery time and back order facility. Annual demand=800 units; Cost of an item=Rs40; Ordering cost=Rs.800/order; Inventory carrying cost =40%/unit/year. Back order cost= Rs 10/unit/year. Find out

I. Economic order quantity
II. Maximum number of backorders
III. Time between orders
IV. Total annual cost
V. Maximum inventory

(10M)

OR

8. A small engineering project consists of 6 activities namely A, B, C, D.E and F with duration of 4, 6,5,4,3 and 3 days. Details are shown in the network diagram (Figure2). Calculate EST, LST, EFT, LFT and floats. Mark the critical path and find total project duration



(14M)

Figure2: Network diagram

Unit-V

9. a) What are the assumptions made in sequencing problems (4M)

b) Find the sequence that minimizes the total elapsed time for 10 jobs through 2 machines M_1M_2 shown in Table 2. Find also total elapsed time (10M)

Table 2:

Job	A	B	C	D	E	F	G	H	I	J
Time on M_1	7	3	10	8	13	9	5	11	7	10
Time on M_2	6	5	15	7	12	12	2	8	5	11

(OR)

10. (a)Explain various priority rules (4M)

(b) Table 3 gives jobs that are waiting to be processed at a small machine center.

Table3: Processing time and due date for jobs

Job	1	2	3	4	5
Due date	260	258	260	270	275
Duration (Days)	30	16	8	20	10

In what sequence would the jobs to be ranked according to (i) FCFS & (ii) LPT. All dates are specified as manufacturing calendar day, Assume that all jobs arrive on day 210. Which is the best decision rule? (10m)

Q.P CODE:1803710

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

VII Sem (R18) Final Examinations, OCT 2021

Subject:Industrial Safety Management

(*Mechanical Engin*eering)

MODEL QUESTION PAPER

Time:3 hrs **Max marks:70**

Note: Answer Any Five questions. Choosing one from each unit.

All questions carry Equal marks

UNIT-1

1).a) Write History & Development of industrial safety movement. (7M)

b) What are the different accepts on Need for safety. Explain them. (7M)

(OR)

2). Discuss different types of Acts and rules on Industrial safety. Explain them in detailed. (14M)

UNIT-2

3). How you identify the hazard on Indsutries and what are the techniques are there to eliminate the hazard on industries. Explain? (14M)

(OR)

4). Discuss different types of hazards on occuring in the field of (14M)

i) Mechanical

ii) Electrical

UNIT-3

5).a) Give some different types of materials and Explain general safety in handling on

i) Ropes.

ii) Chains.

iii) Clamps. (7M)

b) Explain Arresting gears on prime movers. (7M)

(OR)

6). Illustrate the operation and maintainance of industrial trucks on (14M)

i) Mobile carnes

ii) Tower cranes

UNIT -4

7). What is Welding & Gas cutting? Discuss safety operations of hazardous machines. In

i) Safety in welding.

ii) Safety in gas cutting. (14M)

(OR)

8). Discuss in brief about safety in cold forming and hot forming of metals. And also Explain safety of pressure vessels. (14M)

UNIT-5

9). Explain the different types of training methods to an instructor in Industrial level. (14M)

(OR)

10). What are the different methods are there to promote safe practice notivation on both government and private consulting agencies in safety. In detail? (14M)

Code: **1803713**

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

B.Tech VII Sem (R18) Regular Examinations

ENTREPRENEURSHIP

(OPEN ELECTIVE)

MODEL QUESTION PAPER

Time:3 hrs **Max Marks: 70**

Answer five questions. Selecting one Question from each unit
All Questions carry equal marks

Unit-I

1.Define Entrepreneurship. Discuss competencies and challenges of Entrepreneurs.

(OR)

2. Define small scale industry .Explain the small scale industry in our Indian economy.

Unit-II

3. Define women entrepreneurs , Explain the factors influencing the women entrepreneurship.

(OR)

4. Discuss about conception and evaluation of the business ideas and their sources

Unit-III

5.Define business plan , explain the salient features of business plan

(OR)

6. what is business analysis, explain the different types of business analysis

Unit-IV

7. what is project management explain the construction phases of project management

(OR)

8. What are the the techniques used for the project management and explain them in brief

Unit-V

9 Write short notes on (a) values and attitudes (b) attributes and models

(OR)

10. write about the time management and discuss approaches of time management

Code:1804701
MODEL QUESTION PAPER (R18)
B.TECH. VII SEM – ECE
SUB: INTERNET OF THINGS MARKS:70

UNIT-1

1. a) Explain the architecture of an IoT 10M
   b)What is Industrial IoT. 4M

(OR)

2. Discuss the different Challenges of Internet of Things. 14M

UNIT-2

3. a) Explain the different TCP/IP Layers and their relative Protocols. 7M
   b) Explain the IPV4 format. 7M

(OR)

4. a) Explain the concept of IP addressing and its classification. 7M
   b) Establish the TCP communication. 7M

UNIT-3

5. a) Explain the features of MSP432 processor. . 7M
   b) Discuss the architecture of MSP432 processor. 7M

(OR)

6. Write the fundamental programming concepts of MSP432 processor. 14 M

UNIT-4

7. a) Describe the Cloud storage communication model. 7M
b) Explain the need of cloud services in IoT. 7M

(OR)

8. a) What are the different cloud storage services? 7M
   b) What is cloud data processing? 7M

UNIT-5

9. Discuss the application of IoT in healthcare. 14 M

(OR)

10. Explain the application of IoT in security and industries. 14 M

Code: 1804702
MODEL QUESTION PAPER (R18)
B.TECH VII SEM - ECE (2021-22)
SUB: ELECTRONIC MEASUREMENTS AND INSTRUMENTATION

MARKS: - 70

UNIT-1

1. a) Explain following performance characteristics of an instrument with example 10 M
   i) Accuracy ii) Precision iii) Expected Value iv) Sensitivity v) Speed of response
   b) What is error? Describe types of errors with example 4M

(OR)

2. a). Describe with a diagram the operation of a chopper type micro voltmeter. 7 M
   b). Explain with help of a block diagram the operation of a spectrum analyzer. 7M

UNIT-2

3. a) Describe with diagram the operation of Kelvin's bridge 7 M

   b) An inductive coil was tested by an Anderson bridge. The following were the values on balance. Arm AB unknown inductance having resistance R_1 and L_1, arm BC, CD, DA are resistors having 1000Ω, 1000Ω and 2000Ω respectively. A capacitor of 10μF and resistance 400Ω are connected between CE and DE respectively, Source between A and C, r=496. Determine L_1 and R_1. 7 M

(OR)

4. a). Explain the operation of Wheatstone bridge used for the measurement of resistance in medium range. Derive an expression for unknown resistance R_x. 7M
   b). An unbalanced Wheatstone bridge is supplied with a 6V DC and the resistances are 2.5KΩ, 10KΩ, 3.5KΩ and 1 KΩ in the clockwise direction starting from the junction of resistors connected to positive terminal of DC supply. If the galvanometer has an internal resistance of 300Ω. Calculate the current through the meter. 7M

UNIT-3

5. a) Explain with neat block diagram the horizontal deflection system 7 M
   b) State the various applications of an Oscilloscope 7 M

(OR)

6. a) Explain working principle of dual beam CRO 7 M
   b) Explain principle and operation of sampling oscillator. 7 M

UNIT-4

7. a) Describe advantages of DVM over an analog meter. 4 M
   b) Explain with a diagram, the basic principle of a successive approximation type DVM. 10 M

(OR)

8. a) Explain the working principle of tachometer. 7M
   b) Explain the working principle of Digital Phase meter 7M

UNIT-5

9. Discuss briefly about following temperature sensors 14 M
   i) RTD ii) Thermocouple iii) Thermistor

(OR)

10. a) Describe the principle and operation of a linear velocity meter. 7 M
    b) Describe the block diagram of Data acquisition system 7 M

Code: 1804706

MODEL QUESTION PAPER (R18)

BTECH VII SEM - ECE (2021-22)

SUB:CMOS Design

MARKS: - 70

UNIT-1

1. a. Explain the complementary CMOS inverter – DC characteristics. 7M
   b. Draw and explain about BICMOS inverter 7M

(OR)

2. a. Explain briefly CMOS logic circuit and System representations. 7M
   b. With neat diagrams, explain the operation of NMOS enhancement mode transistor 7M

UNIT-2

3. a. Discuss about Switching characteristics of CMOS gate Transistor Sizing 7 M
   b. Explain the different types of power consumption 7M

(OR)

4. a) Explain Sizing Routing conductors in circuit characterization 8M

   b) Explain Resistance estimation in performance estimation 6M

UNIT-3

5. a. Draw and explian the Layouts for NAND and NOR gates 7M
   b. Explain clocked CMOS Logic 7M

(OR)

6. a. Write brief notes on clocking strategies 8 M
   b. Explain Low Power Design in logic design 6 M

UNIT-4

7. a. Explain Design capture tools in CMOS chip Design options 8M

   b. Explain manufacturing test principles in CMOS chip Design. 6M

(OR)

8. a. Explain Chip level Test Techniques in CMOS chip design. 7M

   b. Explain about the design verification tools. 7M

UNIT-5

9. a. Explain Addition/Subtraction party generators in Cmos subsystem design 7M
   b. Describe the general considerations of subsystem design processes 7M

(OR)

10. a. Explain in detail Control Logic Implementation in subsystem design. 7M
    b. Compare the SRAM and DRAM. 7M

Code:1804710
MODEL QUESTION PAPER (R18)

BTECH VII SEM - ECE(2020-21)
SUB: **DIGITAL IMAGE AND VIDEO PROCESSING**

MAX. MARKS: -70

Answer any five questions,
Choosing one question from each unit.

Unit I

1.(a) What are the various fundamental steps of digital image processing? Explain. 7M
M

(b) Explain the following: i) neighbors of a pixel ii) Adjacency 7M

Or

2. (a) Explain with a neat figure the basic idea behind sampling and quantization of an image. 7M

(b) Explain any three Mathematical tools used in image processing. 7M

Unit II

3. (a) Explain point processing techniques of image enhancement. 7M

(b)Define histogram of a digital image. Sketch the histograms of dark, light, low contrast and high contrast images. 7M

Or

4. (a) Discuss about homomorphic filtering and explain how it is related to image model. 7M

(b) Explain Image sharpening in Frequency domain. 7M

Unit III

5.(a) Explain the three types of redundancies in images. 7M

(b). Obtain the Huffman code for the word 'COMMITTEE' 7 M

Or

6. (a). Explain about transform coding in image compression. 7 M

(b). Explain image compression model and explain what is the difference between lossless And lossy compression. 7 M

Unit IV

7.(a). Explain how the image gradient is useful in edge detection. 7 M

(b). Explain image segmentation using region splitting and merging. 7 M

Or

8. (a) Explain image restoration using inverse filtering. Write the advantages and disadvantages of this method. 7M

(b) Derive an expression for unconstrained restoration using algebraic approach. 7 M

Unit V

9. (a). Explain what is analog and digital video. 7M

(b). Explain different video formats. 7M

Or

10. (a) Explain block matching motion estimation algorithm. 7M

(b) Explain the procedure for three step search motion estimation. 7 M

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA
Model Question Paper
(1805701) MACHINE LEARNING
B.Tech. VII Semester (CSE) (R18) Degree Examinations

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

Note: Answer any **FIVE** questions choosing **ONE** question from each unit.
All questions carry **Equal** marks.

UNIT-I

1. a) What are the different types of Machine Learning? Explain them. 7M
   b) List and explain applications of Machine Learning? 7M

(OR)

2. a) Compare Classification with regression with an example. 4M
   b) Explain simple Linear Regression with example. 10M

UNIT-II

3. a) Define decision learning. List and explain appropriate problems for decision tree learning. 7M
   b) Explain the basic decision tree algorithm. 7M

(OR)

4. a) Define inductive bias. Explain inductive bias in decision tree learning. 7M
   b) List and explain issues in decision tree learning. 7M

UNIT-III

5. a) Explain the K-NN Machine Learning model with example. 7M
   b) Describe the curse of dimensionality. 7M

(OR)

6. a) What is the purpose of feature selection and explain forward search and backward search. 7M
   b) Define Dimensionality Reduction. Explain Principal Component Analysis. 7M

UNIT-IV

7. a) Discuss Naïve Bayes Classifier with an example. 8M
   b) Explain Maximum Likelihood Hypothesis for predicting probabilities. 6M

(OR)

8. Explain Support Vector Machine with an example. 14M

UNIT-V

9. a) Compare K-means clustering and K-medoids clustering. 4M
   b)Find the three clusters after one epoch for the following eight examples using the k-means algorithm and Euclidean distance A1=(2,10), A2=(2,5), A3=(8,4), A4=(5,8), A5=(7,5), A6=(6,4), A7=(1,2), A8=(4,9). Suppose that the initial seeds (centers of each cluster) are A1, A4 and A7. 10M

(OR)

10. a) Define Hierarchical clustering. 4M
    b) Explain Agglomerative clustering and Divisive clustering techniques with an example. 10M

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA
Model Question Paper
(1805702) BIG DATA TECHNOLOGIES
B.Tech. VII Semester (CSE) (R18) Degree Examinations

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

Note: Answer any **FIVE** questions choosing **ONE** question from each unit.
All questions carry **Equal** marks.

UNIT I

1. a) Define Hadoop system and compare to other systems. 7M
   b) Write an installation of hadoop with standalone mode. 7M

(OR)

2. a) Discuss in detailed about history of Hadoop. 7M
   b) Explain about VMware installation of Hadoop. 7M

UNIT II

3. a) Write an notes on design issues of HDFS. 7M
   b) Explain about java interface to Hadoop. 7M

(OR)

4. a) Write the java program in Hadoop to display the files. 7M
   b) Explain dataflow of file read in hadoop. 7M

UNIT III

5. a) Explain java mapreduce classes with example. 7M
   b) Explain about analyzing data with UNIX tools and Hadoop. 7M

(OR)

6. a) How to define configuration API with development environment.. 7M
   b)How to running a distributed mapreduce job. 7M

UNIT IV

7. a) Explain task assignment and task execution of mapreduce. 7M
   b) What is difference between map side and reduce side joins. 7M

(OR)

8. a) Write an notes on mapreduce types . 7M
   b) Explain shuffle and sort on map and reducer side. 7M

UNIT V

9. a) Explain the architecture of HIVE with a neat sketch. 7M
   b).How to compare the traditional databases 7M

(OR)

10. a).Write an installation of PIG 7M
    b).How to run the pig latin scripts to find word count. 7M

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA
Model Question Paper
(1805705) CLOUD COMPUTING
B.Tech. VII Semester (CSE) (R18) Degree Examinations

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

Note: Answer any **FIVE** questions choosing **ONE** question from each unit.
All questions carry **Equal** marks.

UNIT-I

1. Explain 5-4-3 principles of Cloud Computing with appropriate diagrams. 14M

(OR)

2. a) Explain Cloud Ecosystem with a neat diagram. 7M
   b) List requirements for Cloud Services and explain. 7M

UNIT-II

3. a) Discuss Cloud architecture with appropriate diagram. 7M
   b) Explain the evolution of cloud applications. 7M

(OR)

4. a) How to manage the cloud infrastructure? Explain. 7M
   b) Explain the phases of cloud migration. 7M

UNIT-III

5. a) Discuss characteristic, advantage and disadvantages of private cloud. 7M
   b) Explain the difference between outsourced and on-Premise community cloud. 7M

(OR)

6. a) Explain different approaches to Virtualization 7M
   b) Discuss the suitability of IaaS. 7M

UNIT-IV

7. a) Explain different cloud application development platforms. 7M
   b) Discuss different perspectives on SaaS development. 7M

(OR)

8. a) What are the new challenges of software development in cloud. 7M
   b) Explain Cloud-Aware Software development using PaaS technology. 7M

UNIT-V

9. Discuss the overview of Data center environment. 14M

(OR)

10. a) Explain how Amazon Web Services support cloud computing. 7M
    b) Discuss Captiva Cloud Toolkit by EMC. 7M

Code: 1825701

KSRM COLLEGE OF ENGINEERING, KADAPA

(AUTONOMOUS)

B. TECH. VII SEM Electrical & Electronics Engineering (R18)

SUB: Project Management

MODEL PAPER

TIME: 3HRS **Max. Marks: 70**

Note: Answer any ***five*** of the following

Choosing ***one*** from each unit

<table>
<tr><td></td><td colspan="6"><u>UNIT-I</u></td><td></td></tr>
<tr><td>1.</td><td colspan="6">Define Project Management and Explain taxonomy and principles of Project Management</td><td>14M</td></tr>
<tr><td></td><td colspan="6">(OR)</td><td></td></tr>
<tr><td>2.</td><td colspan="6">Explain the Project Selection and Planning Process.</td><td>14M</td></tr>
<tr><td></td><td colspan="6"><u>UNIT-II</u></td><td></td></tr>
<tr><td>3.</td><td colspan="6">Define Capital Budgeting? Explain various Techniques of Capital Budgeting</td><td>14M</td></tr>
<tr><td></td><td colspan="6">(OR)</td><td></td></tr>
<tr><td>4.</td><td colspan="6">From the given data of Project A and B costing Rs.300000 each, Select a Project Profitable using the following methods if the cost of capital is 10% per annum.
a) Payback period b) Average rate of return c) Net present value
Cash flows after taxes plus depreciation
<table>
<tr><td>Year</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr>
<tr><td>Project-A</td><td>80,000</td><td>1,50,000</td><td>1,10,000</td><td>60,000</td><td>50,000</td></tr>
<tr><td>Project-B</td><td>50,000</td><td>70,000</td><td>1,20,000</td><td>1,60,000</td><td>90,000</td></tr>
<tr><td>P.V.Factor for Rs.1 at 10% Discount rate</td><td>0.909</td><td>0.826</td><td>0.751</td><td>0.680</td><td>0.620</td></tr>
</table></td><td>14M</td></tr>
<tr><td></td><td colspan="6"><u>UNIT-III</u></td><td></td></tr>
<tr><td>5.</td><td colspan="6">Define risk and explain the role of risk management and steps involved in risk Management</td><td>14M</td></tr>
<tr><td></td><td colspan="6">(OR)</td><td></td></tr>
<tr><td>6.</td><td colspan="6">Write a lucid note on the following
a) Project Quality management
b) Value Engineering</td><td>14M</td></tr>
<tr><td></td><td colspan="6"><u>UNIT-IV</u></td><td></td></tr>
<tr><td>7.</td><td colspan="6">Define Project Scheduling and explain the steps involved in Project Scheduling</td><td>14M</td></tr>
<tr><td></td><td colspan="6">(OR)</td><td></td></tr>
</table>

<table>
<tr><td>8.</td><td>A Project has nine activities, the expected time of each activity is as follows:

<table><tr><td>Sr.No.</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>Activity</td><td>1-2</td><td>1-3</td><td>2-4</td><td>3-4</td><td>4-6</td><td>5-6</td><td>3-5</td><td>5-7</td><td>6-7</td></tr><tr><td>Expected time (days)</td><td>6</td><td>8</td><td>7</td><td>12</td><td>3</td><td>5</td><td>7</td><td>11</td><td>10</td></tr></table>a. Draw the project network
b. Identify the critical path
c. Find project duration
Find Slack time at each event.</td><td>14M</td></tr>
<tr><td></td><td><u>UNIT-V</u></td><td></td></tr>
<tr><td>9.</td><td>What is Project Execution and explain project execution process ?</td><td>14M</td></tr>
<tr><td></td><td>(OR)</td><td></td></tr>
<tr><td>10.</td><td>Write the following :
a) Essential requirement of project management software
b) Common features present in project management software</td><td>14M</td></tr>
</table>