FACULTY OF ENGINEEERING

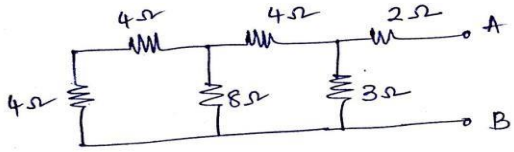
B.E. (Civil) III - Semester (AICTE) (Main) Examination, March / April 2022

Subject: Basic Electrical Engineering

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

Note: (i) First question is compulsory and answer any four questions from the remaining six questions. Each Questions carries 14 Marks.
(ii) Answer to each question must be written at one place only and in the same order as they occur in the question paper.
(iii) Missing data, if any, may be suitably assumed

1 (a) State ohms law and Kirchhoff's voltage law.
(b) Calculate the equivalent resistance between the terminals A & B for the circuit?

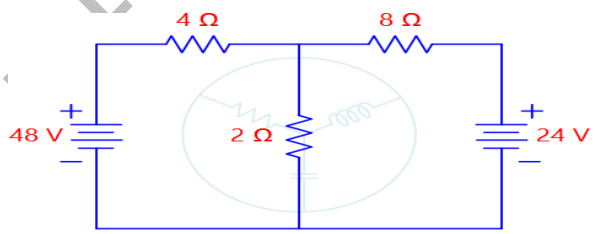


(c) Write the relationship of line and phase voltage and current in star and delta connected system.

(d) What is BH curve and Draw BH curve.
(e) A 6-pole three phase induction motor is connected to 50Hz supply. If it is running at 970rpm. Find slip.

(f) Mention various applications of DC series motor.
(g) What is Earthing?

2 (a) State and explain Norton's theorem with suitable example.
(b) Consider the given circuit and find the current through 2Ω resistor using superposition theorem.



3 (a) Derive equation to find the average and RMS value of a sinusoidal wave. Also find form factor.
(b) A series circuit has R = 100 ohms, L = 25 mH, C = 100 µF and is supplied with 230V,50Hz. Find impedance, current, power factor and voltage drop across each element.

4 (a) Derive the EMF equation of transformer. Find the cross-sectional area of the core of a 10 turn's transformer for a voltage of 50V at 50 Hz. The flux density is 0.9wb/m^2.
(b) Explain how rotating magnetic field is produced in three phase induction motor.

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5 (a) Explain about capacitor start and capacitor run single phase induction motors.
(b) Explain in constructional details and principal operation of DC generators.

6 (a) Explain the working of ELCB with neat sketch.
(b) Discuss about various types of batteries and earthing.

7 (a) Write short notes on Ideal transformer.
(b) Explain the different types of voltage and current sources.

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Code No. D-2349/N/AICTE

FACULTY OF ENGINEERING

B.E. (EEE) III - Semester (AICTE) (Main) Examination, March / April 2022

Subject: Electrical Circuit Analysis

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

Note: (i) First question is compulsory and answer any four questions from the remaining six questions. Each question carries 14 marks.
(ii) Answer to each question must be written at one place only and in the same order as they occur in the question paper.
(iii) Missing data, if any, may be suitably assumed.

1
(a) Draw the A.C Power triangle of R-L circuit and identify the relationship between real, reactive and apparent powers.
(b) Define Quality factor of coil.
(c) State superposition theorem and list its limitation when applied to a.c circuit.
(d) Find time constant of an R-L circuit with R=10 ohms, L=2H.
(e) Write s-domain representation of an inductor with initial current I_o.
(f) A certain circuit has applied voltage v(t)=330sin(314t+45), and current i(t)=150sin(314+65), identify the circuit elements.
(g) Justify a two port network with single series impedance does not have an impedance matrix.

2 (a) Two impedances (3+j4) Ωand (7-j5)Ω are in parallel with 10Ωseries resistor. An a.c voltage of 200v, 50Hz is applied to the circuit find a) voltage drop in (3+j4) Ω b) complex power supplied by source.
(b) Three impedances j5Ω, -j25Ω and 15Ω are connected in star across a 3-Phase, 440v, 50Hz a.c supply. Find line currents. Assume RYB sequence.

3 (a) solve for current in capacitor branch using mesh analysis for circuit shown in fig.1 and verify result using nodal analysis.

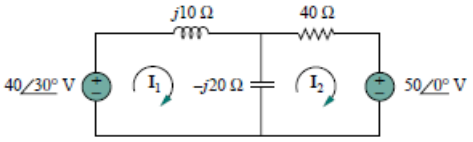

Fig 1

(b) Use maximum power transfer theorem in circuit fig 2 to calculate maximum power in R_L.

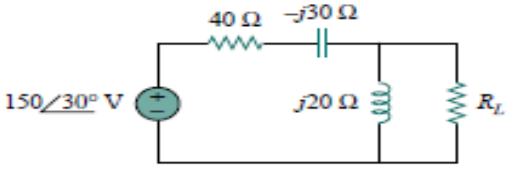

Fig 2

4 (a) Evaluate the initial conditions for an RLC parallel circuit and explain the source free resposnse v(t).Assume L and C with initial current and voltage .

..2

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(b) An R-L series circuit is suddenly applied with AC voltage of v(t)= 330sin(314t) at t=0secs,the inductor was previously excited with dc source 100V for a long time prior to application of v(t).if R=2Ωand L=2mH,evaluate current using differential approach ,at t equal to three time constants of the circuit.

5 (a) Derive time differentiation & integration Laplace Transform property and apply them to represent inductor and capacitors in s-domain.

(b) An inductor with 1H of inductance and with initial current of 2A is connected to a resistor of 2Ω at t=0s,by closing the switch, solve for voltage expression across resistor.

6 (a) Define Y- parameters and derive its pi(Delta) and general equivalent circuit.

(b) Solve for over all Y-parameters of two port network in fig 3.

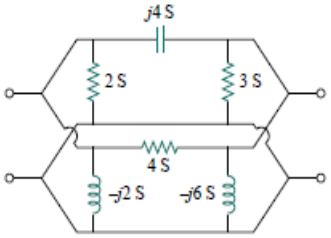

Fig.3

7 (a) Derive the relationship between phase and line quantities of a delta connected three phase circuit.

(b) State and explain initial and final value theorems.

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Code No. 2353/AICTE

FACULTY OF ENGINEERING

B. E. (EIE) III – Semester (AICTE) (Main) Examination, March / April 2022

Subject: Network Analysis

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

Note: (i) First question is compulsory and answer any four questions from the remaining six questions. Each Questions carries 14 Marks.
(ii) Answer to each question must be written at one place only and in the same order as they occur in the question paper.
(iii) Missing data, if any, may be suitably assumed.

1

(a) Classify dependent sources

(b) Define Q-factor and Band width.

(c) Find form factor and peak factor of the given current function

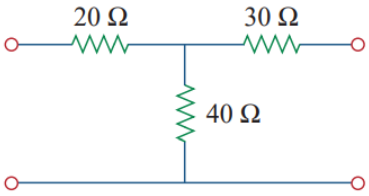
$i(t)=10\cos(50t+60^0)$ A

(d) List the applications of resonance

(e) Draw the equivalent circuit for admittance(Y) parameters.

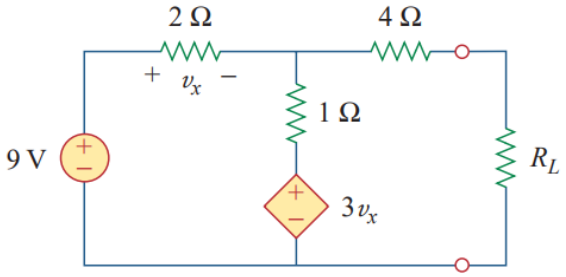
(f) State and explain Thevenin's theorem

(g) Determine T-parameters of the following network



2 (a) State and explain super position theorem

(b) Determine R_L when maximum power transferred from the rest of the circuit. Also calculate Maximum power transferred to the R_L



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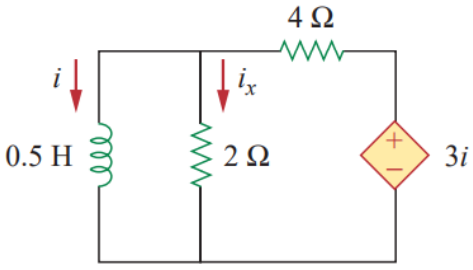
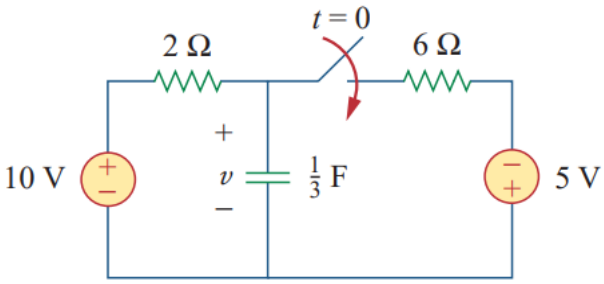
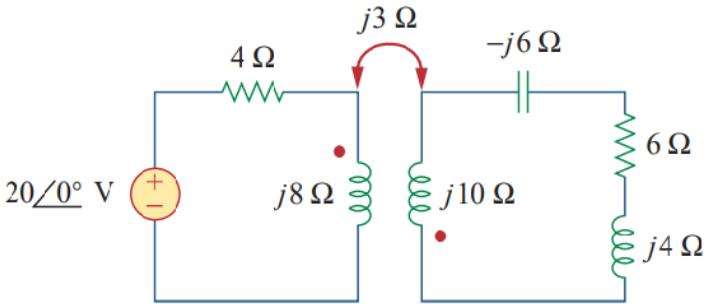
3 (a) Calculate i(t) and i_x(t) in the below circuit. Initial current in the inductor is 1A



(b) In the given circuit Calculate *v*(t) for t >0 and *v*(t) for t=0.1 sec. Initially capacitor is relaxed due to switch has been opened for long time and is closed at t=0

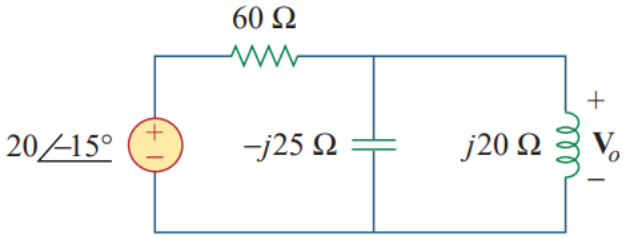


4(a) Find the Current from the source in the below circuit.



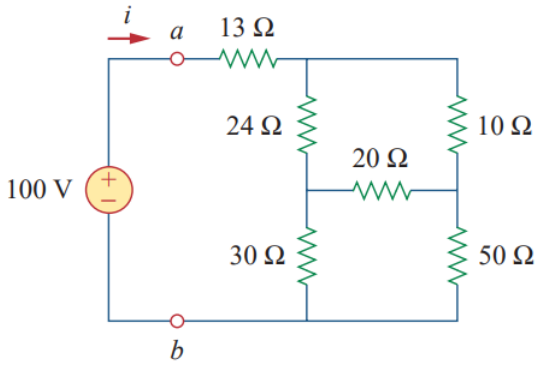
(b) Prove that $\tan\theta = \sqrt{3}\frac{(p2-p1)}{(p2+p1)}$ by using two watt meter method. Where $p1$ and $p2$ are power readings of wattmeter 1 and 2 respectively.

5 (a) Determine V_o in the given circuit and find the current passing through the capacitor



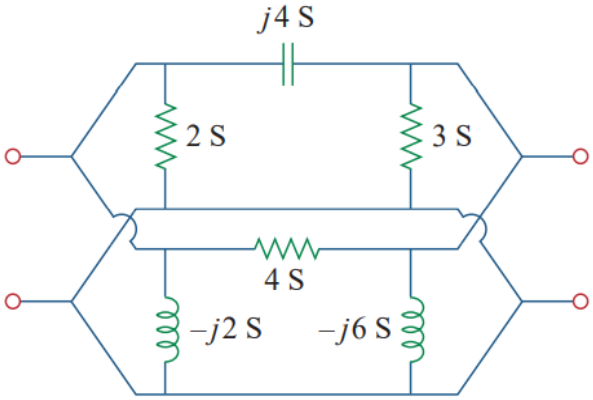
(b) The sinusoidal voltage *v*(t)= 12sin(314t+60^0) V is given to a RC series circuit. find average current, RMS current and form factor. Assume R=5Ω and C=10μF.

6 (a) By using Star-Delta conversion, find equivalent resistance (R_{ab}) across a and b terminals, and also find current (i) in the given circuit shown below

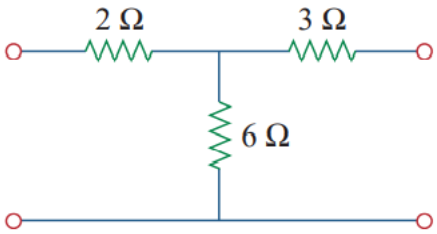


(b) A balanced Y-connected load with a phase resistance of 40Ω and reactance of 25Ω is supplied by a balanced, positive sequence Δ-connected source with a line voltage of 210V, Calculate the phase currents. Use V_{ab} as the reference.

7 (a) Find the Y-Parameters of the given two port network



(b) Find the Hybrid parameters of the given two port network



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Code No. D-2360/N/AICTE

FACULTY OF ENGINEERING

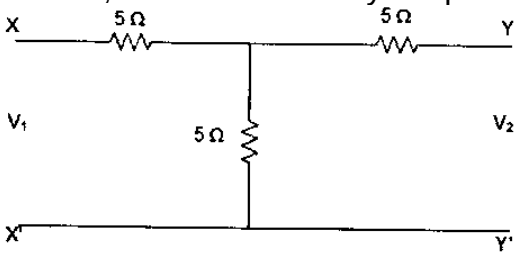
B.E. (ECE) III - Semester (AICTE) (Main) Examination, March / April 2022

Subject: Network Theory

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

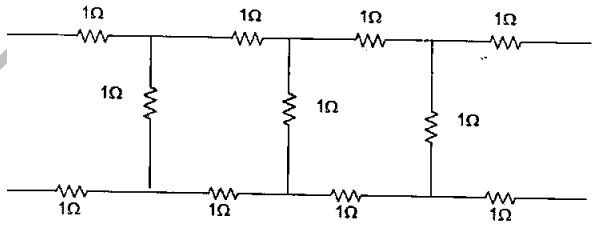
Note: (i) First question is compulsory and answer any four questions from the remaining six questions. Each question carries 14 marks.
(ii) Answer to each question must be written at one place only and in the same order as they occur in the question paper.
(iii) Missing data, if any, may be suitably assumed.

1 (a) In the circuit given below, the value of the hybrid parameter h_{12} is _____



(b) Define Image Transfer Constant, Iterative Transfer Constant of the asymmetrical network.
(c) Show that for a filter $Z_{OT}\, XZ_{O\pi} = Z_1Z_2$.
(d) Explain how band pass filter can be designed using LPF and HPF.
(e) Design a symmetrical π attenuator with a R_0=600Ω and attenuation of 60 dB.
(f) Test whether the polynomial $P(S) = 2S^3 + 4S^2 + 5S + 2$ is Hurwitz.
(g) List the properties of positive Real function.

2 (a) For the given circuit, find Z-Parameters
(b) Convert two port Y-parameters to h-parameters.



3 (a) What are the Electrical Properties of Symmetrical and asymmetrical networks?
(b) Draw T and π Networks Derive relation between T and π Networks.

4 (a) Design a composite low-pass filter with a cut-off frequency at 2 KHz and impedance of 600 Ω. There should be a frequency of infinite attenuation at 2.5 KHz.
(b) Design a constant K high pass T section filter for R_0=600 Ω and f_c=1KHZ.

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5 (a) Design a unbalanced asymmetrical π –attenuator with a attenuation of 15 dB to operate between 400 Ω and 625 Ω line.
(b) Derive expression for Coshγ, where γ is image transfer constant for standard Symmetrical π-network.

6 (a) Synthesize the following LC impedance function using the cauer Form I $Z(S) = s\,(s^2+4)\,(s^2+6)/(s^2+3)\,(s^2+5)$.
(b) Synthesis Y(S) = S(s+2) / (S+1) (S+2) in Foster Forms.

7 (a) Given ZA=200 Ω, ZB=400 Ω and ZC=500 for an asymmetrical network, calculate Image Impedances of Zi and Zi_2here Z_A,Z_B are series impedances and shunt impedance is Z_C.
(b) Design a T pad attenuator to give an attenuation of 10 dB and characteristic impedance of 150 Ω.

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Code No. D-2362/AICTE

FACULTY OF ENGINEERING

B.E. (MECH/PROD/AE) III - Semester (AICTE) (Main) Examination, March / April 2022

Subject: BASIC ELECTRONICS

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

Note: (i) First question is compulsory and answer any four questions from the remaining six questions. Each Questions carries 14 Marks.

(ii) Answer to each question must be written at one place only and in the same order as they occur in the question paper.

(iii) Missing data, if any, may be suitably assumed

1.

(a) Define Efficiency in rectifier.

(b) Draw the V-I Characteristics of Zener diode.

(c) Compare CB, CE and CC BJT configurations.

(d) What are the Advantages of Negative feedback?

(e) Define Bark-hausen Criterion.

(f) What are the Ideal op-amp characteristics?

(g) Define Transducer.

2. (a) A silicon diode having internal resistance rf = 20Ω is used for half-wave rectification. If the applied voltage v = 50 sin (ω t) and load resistance RL = 800 Ω, find : (i) I_m, I_{dc}, I_{rms} (ii) a.c. power input and d.c. power output (iii) d.c. output voltage (iv) efficiency of rectification.
(b) Explain any two CRO applications.

3. (a) Draw the CE amplifier hybrid equivalent circuit and find its current gain , voltage gain Input impedance and output impedance.
(b) Explain the operating regions in JFET.

4. (a) Differentiate Voltage series ,Voltage shunt, Current series and Current shunt in input and output resistances.
(b) Explain about Crystal Oscillator in detail.

5. (a) Design an adder circuit using an op-amp to get the following output expression, $V_o = V_1 + V_2 + V_3$.
(b) Draw and explain the Truth-Table, Logic diagram of half-adder and full-adder.

6. (a) Explain the operating regions of BJT.
(b) Draw and Explain the CE input and output characteristics.

7. (a) Explain about strain gauge LVDT for measurement of small displacements.
(b) Explain about R-2R ladder D/A converter.

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Code No.D-2369/N/AICTE

FACULTY OF ENGINEERING

BE (CSE/IT) III - Semester (AICTE) (Main) Examination, March / April 2022

Subject: Basic Electronics

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

Note: (i) First question is compulsory and answer any four questions from the remaining six questions. Each Questions carries 14 Marks.
(ii) Answer to each question must be written at one place only and in the same order as they occur in the question paper.
(iii) Missing data, if any, may be suitably assumed.

1. a) List out the characteristics of P-N junction diode.
   b) Explain drain characteristics of JFET
   c) List the properties of negative feedback amplifier.
   d) Define OP-AMP and draw circuit diagram of OP-AMP.
   e) Explain the classification of transducers.
   f) Draw half adder circuit using logic gates.
   g) Draw transistor configurations as CB,CE and CC.

2. a) Explain the performance of zener diode as regulator with a neat diagram.
   b) What is CRO. Explain the construction of CRT.

3. a) Explain the construction and working of N-channel JFET.
   b) How BJT can work as an amplifier explain with the diagram.

4. a) Describe the working of Colpitts Oscillator and derive its frequency of oscillation.
   b) Explain the RC-Phase Shift Oscillator using BJT and obtain its frequency of oscillation.

5. a) Dsign a circuit which produces output voltage $V_o = 3v_1 - 2v_2 + 4v_3$
   b) Explain the AC and DC characteristics of an OP-AMP.

6. a) Explain the construction and working of LVDT.
   b) Explain the operation of R-2R ladder DAC.

7. a) Design a full adder circuit by using only NAND gates.
   b) Write the differences between BJT and JFET.

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Code No. D-2431/N/AICTE

FACULTY OF ENGINEERING

B.E. (CME/DS) III – Semester (AICTE) (Main) Examinations, March / April 2022

Subject: Basic Electronics

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

Note: (i) First question is compulsory and answer any four questions from the remaining six questions. Each Question carries 14 Marks.
(ii) Answer to each question must be written at one place only and in the same order as they occur in the question paper.
(iii) Missing data, if any, may be suitably assumed.

1.
(a) Differentiate avalanche and zener breakdown voltage of diode.
(b) Draw the symbols for BJT and FET.
(c) Explain pinch off phenomenon of FET.
(d) What are the ideal characteristics of op-amp?
(e) Draw the schematic symbol of op-amp.
(f) List the applications of negative feedback amplifier.
(g) Define transducer.

2. (a) Draw the circuit diagram of PN junction diode in forward and reverse bias. Draw the V-I characteristics of PN diode and explain its regions.
(b) Explain the working of bridge rectifier with neat sketch and derive efficiency, ripple factor.

3. (a) Explain the working of JFET and also describe the drain and transfer characteristics.
(b) Explain input and output characteristics of CE configuration.

4. (a) Draw the circuit and derive expression for frequency of oscillations of colpitts oscillator.
(b) Derive any two properties of negative feedback amplifier.

5. (a) Give and design X-OR gate, OR gate using only NAND gates.
(b) Define (i) Slew rate (ii) CMRR (iii) offset voltage (iii) Input biasing current.

6. (a) Draw the circuit diagram of successive approximation ADC and explain its working.
(b) Explain the working of Strain gauge and derive gauge factor.

7. (a) Explain how zener diode acts as regulator. Write short notes on avalanche break down.
(b) Explain virtual ground concept of op-amp. Define and explain inverting op-amp.

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Code No. D- 2386/N/AICTE

FACULTY OF ENGINEERING

B.E. (AI&DS) III – Semester (AICTE) (Main) Examination, March / April 2022

Subject: Basic Electronics

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

Note: (i) First question is compulsory and answer any four questions from the remaining six questions. Each Question carries 14 Marks.
(ii) Answer to each question must be written at one place only and in the same order as they occur in the question paper.
(iii) Missing data, if any, may be suitably assumed.

1.
(a) What are the applications of diode?
(b) Draw the symbols for BJT, FET, Zener diode and PN diode.
(c) Write the applications of CRO.
(d) Draw the pin diagram of op-amp?
(e) Realize two input AND gate using only NAND gates.
(f) Define CMRR?
(g) Write short notes on stain gauge?

2. (a) Draw the Full wave Rectifier with necessary waves and derive expression for its efficiency, ripple factor, TUF.
(b) Explain the working of CRO with neat block diagram.

3. (a) Explain the working characteristics of P-N-P and N-P-N Transistor with its current components.
(b) Explain how transistor works as an amplifier with diagram.

4. (a) Draw the circuit and derive expression for frequency of oscillations of Wien Bridge oscillator.
(b) What is piezoelectric effect? Explain clearly the operation of crystal oscillator.

5. What are universal gates? Design half and full adder circuits using NOR gates only.

6. Write short notes on
(a) Successive approximation ADC
(b) Thermocouple

7. (a) Derive the properties of negative feedback amplifier.
(b) Explain (i) inverting op-Amp (ii) Filters and its types with brief notes.

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Code No.D-2392/ N/AICTE

FACULTY OF ENGINEERING

B.E. (AI&ML) III – Semester (AICTE) (Main) Examination, March/ April 2022

Subject: Automata Languages and Computation

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

Note: (i) First question is compulsory and answer any four questions from the remaining six questions. Each Question carries 14 Marks.
(ii) Answer to each question must be written at one place only and in the same order as they occur in the question paper.
(iii) Missing data, if any, may be suitably assumed.

1.

(a) Construct DFA that accepts all strings of a's and b's where each string starts with 'ab' over alphabet {a,b}.

(b) State Myhill-Nerode Theorem.

(c) Check whether the given grammar is ambiguous or not $S \rightarrow AB / aaB$;

$A \rightarrow a / Aa$; $B \rightarrow b$

(d) State pumping lemma for CFL.

(e) Give the formal definition of PDA

(f) What is restricted Turing Machine.

(g) What do you mean by Recursively enumerable languages?

2. (a) Convert the Following NFA to DFA

	0	1
→q_0	q_0q_1	q_0
q_1	ϕ	q_2
q_2	ϕ	q_3
* q_3	q_3	q_3

(b) Summarize Closure properties of Regular languages

3. Minimize the following DFA.

	0	1
→q_1	q_2	q_3
q_2	q_3	q_5
*q_3	q_4	q_3
q_4	q_3	q_5
*q_5	q_2	q_5

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4. Examine the given PDA P=({q0,q1,q2,q3}, {0,1}, {X,Y,Z}, δ, q0,Z,{q3})
   1. δ(q0,ε,Z) = (q1, XZ)
   2. δ(q1,0,X) = (q1, YX)
   3. δ(q1,0,Y)= (q1, YY)
   4. δ(q1,1,Y)= (q2, Y)
   5. δ(q2,1,Y)= (q2, Y)
   6. δ(q2,0,Y)= (q2, ϵ)
   7. δ(q2,ϵ,X)=(q2,ϵ)
   8. δ(q1,ϵ,Z)=(q3,Z)
   9. δ(q2,ϵ,Z)=(q3,Z)

   Show the sequence of IDs to demonstrate the processing of the strings "01100".

5. (a) Construct a TM to accept the language of palindrome over the alphabet {a,b}.
   (b) Write a Short notes on Universal TM.

6. (a) Consider the Grammar
   $S \rightarrow A1B$; $A \rightarrow 0A / \in$; $B \rightarrow 0B / 1B / \in$
   For the string w = 00101, find Leftmost derivation and Rightmost derivation.
   (b) Explain Chomsky Hierarchy of Languages.

7. (a) Check if the given case is an instance of PCP.

	List A	**List B**
i	w_i	x_i
1	110	110110
2	0011	00
3	0110	110

   and write two solutions of the same , if true

   (b) Discuss Undecidability of PCP

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Code No. D-2381/N/AICTE

FACULTY OF ENGINEERING

B.E. (IOT) III - Semester (AICTE) (Main) Examination, March / April 2022

Subject: Environmental Science

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

Note: (i) First question is compulsory and answer any four questions from the remaining six questions. Each question carries 14 marks.
(ii) Answer to each question must be written in one place only and in the same order as they occur in the question paper.
(iii) Missing data, if any, may be suitably assumed.

1 (a) Discuss the conflict on river water sharing among various Indian states with examples.
(b) Appraise on types of energy pyramids.
(c) What are the three primary levels of biodiversity?
(d) What do you mean by secondary air pollutants? How they're formed?
(e) How can climate change affect natural disasters?
(f) List a few prominent environmental protection laws enacted in India.
(g) How the use of renewable energy resources may reduce the global carbon footprint?

2 (a) Appraise on the environmental problems caused by modern agriculture practices.
(b) Write about current environmental issues and discuss their impact on the ecosystem.

3 (a) Brief the energy flow in an ecosystem through food chains and food webs.
(b) What are the major types of terrestrial ecosystems? What makes terrestrial ecosystems distinguishable from aquatic ecosystems?

4 (a) What do you mean by the value of biodiversity? What are the different values of biodiversity?
(b) What are the main threats to biodiversity? Discuss in detail.

5 (a) What do you mean by water pollution? Discuss various ways to improve water quality.
(b) What are the 3 R's of recycling? And why is it essential in solid waste management?

6 (a) Why is water resource management vital for sustainable development?
(b) Discuss the disaster management framework of India.

7 (a) What do you mean by soil degradation? Discuss various management practices that can be opted to reduce soil erosion.
(b) How do disasters damage the environment? Discuss the impact of the earthquake on the environment.

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Code No: D-2021/O/AICTE

FACULTY OF ENGINEERING

B.E. (Civil/EEE/EIE) III – Semester (AICTE) Examination, March / April 2022

Subject: Industrial Psychology

Time: 3 Hours **Max marks: 70**

(Missing data, if any, may be suitably assumed)

PART – A

Note: **Answer all questions**. **(10x2=20 Marks)**

1. What is industrial engineering?
2. What is organization theory?
3. How incentive act as motivators
4. What are human needs? Write about the different types of human needs.
5. Explain the concept of Consumer behavior.
6. Write the meaning of departmentalism in an industry.
7. Write a short note on types of Fatigue
8. What is job design?
9. What is accident record.
10. How can be accidents reduced in industry.

PART - B

Note: Answer any five questions. **(5x10 = 50 Marks)**

11.a) Discuss in detail different Organizational theories.
b) What role does authority and power plays in organizational effectiveness?

12. a) Describe in detail Herzberg's Motivation Hygiene Theory.
b) Explain how an employee is selected, trained, placed an considered for promotion with diagram.

13. a) What are the various factors influencing consumer behavior?
b) What are the effects of advertisements on consumers?

14. a) How engineering psychology is applicable to industry?
b) What are the different factors effecting efficiency at work place?

15. What is boredom? How to overcome boredom in industrial environment.

16. a) Explain the various factors which are considered when a job is designed.
b) What are the Merits and Demerits of Work Simplification?

17. Explain different types of work methods. Describe work curve and its characteristics.

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Code No. 2033/O/AICTE

FACULTY OF ENGINEERING

B.E. (ECE/MECH/PROD/AE/IT) III Semester (AICTE) Examination, March / April 2022

Subject: Finance and Accounting

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

(Missing data, if any, may be suitably assumed)

PART – A

Note: Answer all questions **(10 x 2 = 20 Marks)**

1 Write about Ledger Account?
2 Define BRS.
3 What is current liability?
4 Define Trading Account.
5 Explain about Credit Market.
6 State the importance of Financial System.
7 Define Capital budgeting?
8 Write about Accounting Rate of Return?
9 Explain Debt-Equity Ratio.
10 What is Solvency Ratio?

PART – B

Note: Answer any Five questions **(5 x 10 = 50 Marks)**

11 a) Define Financial Accounting. What are its objectives?
b) From the following transactions, prepare a simple cash book.

2008.		Rs.
Jan.1	Commenced business with a capital	10,000
Jan. 2	Received cash from Prasad	1,900
Jan. 3	Bought goods from Ravi	4,000
Jan. 5	Paid cash to Ravi	950
Jan. 10	Cash purchases	1,000
Jan. 15	Cash sales	2,000
Jan. 22	Paid wages	500
Jan. 25	Received interest	600

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12 Prepare Final Accounts from the Trial Balance of M/S. Shyam and sons for the Year Ending on 31-03-2002.

Particulars	**Debit (Rs.)**	**Credit (Rs.)**
Capital account	--	1,26,177
Sales	--	1,93,230
Creditors	--	22,680
Purchase Returns	--	3,172
Bills Payable	--	6,422
Machinery	1,55,000	--
Furniture	1,720	--
Fuel and Power	542	--
Salaries	3,745	--
Lighting (Factor)	392	--
Travelling expenses	925	--
Carriage out	960	--
Bank	2,245	--
Cash in hand	68	--
Debtors	47,800	--
Purchases	83,290	--
Wages	9,915	--
Rent and Taxes	1,765	--
Office Expense	2,778	--
Carriage in	897	--
Discount	422	--
Drawings	6,820	--
Opening Stock	21,725	--
Manufacturing Expense	2,680	--
Sales Returns	7,422	--
Insurance	570	--
Total	**3,51,681**	**3,51,681**

13 a) What is Financial Markets? What are its feature and functions?
b) Describe the role of Financial System.

14 A company is considering an investment proposal which will cost Rs 5000/- with a life of 5 years. The estimated CFATs from the proposals are as follows:

Year	1	2	3	4	5	Total
CFATs (in thousands)	1000	1045	1180	1225	1675	6125

15 Calculate the amount of Opening Stock and Closing Stock from the following figures. Average Debt Collection Periods 4months. Stock Turnover ratio 3 times. Average Debtors Rs. 1,00,000. Cash Sales being 25& of Total Sales. Gross Profit Ratio 25&. Stock at the end was 3 times that in the beginnings.

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16 a) what is Accounting cycle? Explain the Various steps involved in it?

b) Write Journal Entries for the following transaction.

I.	1st Nov	Purchased goods for cash	Rs. 5000
II.	2nd Nov	Sold goods for cash	Rs. 8000
III.	3rd Nov	Received cash from Deepak	Rs. 2500
IV.	4th Nov	Paid rent	Rs. 5000
V.	5th Nov	Deposited in Bank	Rs. 40,000
VI.	6th Nov	Sold goods to Hari	Rs 2500

17 Write a short notes:

a) Final Account.

b) Money Market.

c) Debtor's turnover ratio.

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Code No: D-2047/O/AICTE

FACULTY OF MANAGEMENT

BE (CSE) III - Semester (AICTE) (Backlog) Examination, March / April 2022

Subject: Data Structures and Algorithms

Time: 3 Hours **Max marks: 70**

(Missing data, if any, may be suitably assumed)

PART – A

Note: **Answer all questions**. **(10 x 2 = 20 Marks)**

1 Define an Algorithm and briefly explain properties of an Algorithm.

2 What is a sparse matrix? Explain the sparse matrix representation.

3 Write about time and space complexity.

4 Define Hashing. What are the advantages of hashing?

5 Write pseudo code for demonstrating inorder traversal of a binary tree using recursion

6 Differentiate between Quick Sort and Merge Sort.

7 Justify the data structure used for computing BFS in a graph

8 How dynamic memory avocation works in C^{++}?

9 What is a circular linked list?

10 Write about threaded Binary tree.

PART – B

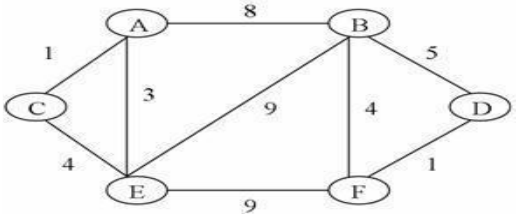
Note: **Answer any five questions**. **(5 x 10 = 50 Marks)**

11 (a) Compare the various asymptotic notations used for analyzing the performance of an algorithm.
(b) Explain how the Sparse matrix implementation is benefited using a linked list.

12 (a) Demonstrate the operations of a Stack implemented using a Linked List
(b) Write a recursive function to reverse elements of queue using operators of queue.

13 (a) What are the operations of a singly linked list? Discuss.
(b) Insert the following keys into a hash table of size 7. Use the hash function K % 7 and linear probing to resolve collisions 21, 35, 22, 37, 27, 38.

14 (a) What is Minimum Cost Spanning tree (MST)? Explain Prim's algorithm to construct MST on the following graph.



(b) Explain AVL Tree.

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15 (a) Explain about the procedure for heap sort.
(b) Sort the following numbers using heap sort. 5, 23, 7, 18, 2, 1, 9, 15, 6, 4, 8, 3, 13

16 Write short notes on
(a) Linear search and Binary search
(b) Equivalence classes

17 (a) Write about how stacks are used for expression conversion using an appropriate example.
(b) How elements are inserted and deleted in doubly linked list.

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