

# AR16

**CODE:** 16CE2010

**SET-2**

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI  
(AUTONOMOUS)**

**II B.Tech II Semester Regular & Supplementary Examinations, April-2019  
BUILDING PLANNING AND DRAWING  
(Civil Engineering)**

**Time: 3 Hours**

**Max Marks: 70**

## **PART-A**

**Answer any Three questions Part-A**

**[3 X 14 = 42 M]**

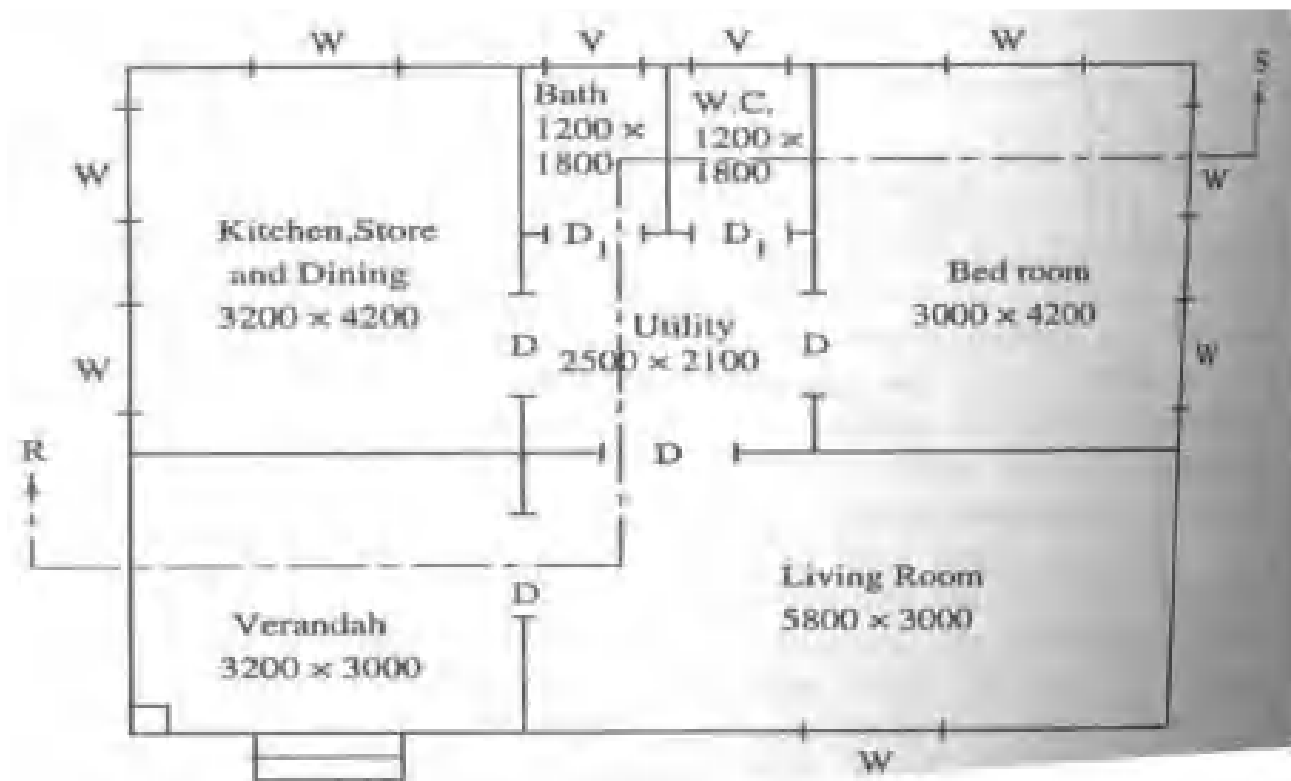
1. a What is meant by FSI? State the importance of this factor? [7M]  
b Write briefly about Open Space Requirements of buildings. [7M]
- 2 Explain in detail about the characteristics of various types residential buildings [14M]
3. a What is a sun path diagram? Give C.B.R.I recommendations for obtaining optimum orientation of a building. [7M]  
b Explain in detail the 'orientation of a residential building' with a sketch. [7M]
4. Explain in detail the various requirements of different rooms and their grouping. List out different purposes of rooms in a residential building? [14M]
5. a Explain in detail the following: [7M]  
(a) Floor area ratio (b) Building byelaws  
b What is the purpose of ventilation? Explain the various types of natural and mechanical ventilation. [7M]

## PART-B

Answer any **one** question from Part-B

[1x28=28M]

6. a Draw rough sketch of English Bond for  $1\frac{1}{2}$ , 2 brick wall [18M]  
b Draw the sign conventions of earth, rock, sand filling, concrete and marble? [10M]
7. Draw the Plan, section and elevation for the line diagram shown below in Fig. 1 to scale. Assume D1 – 800 x 2000, D – 1000 x 2000, W – window Glazed – 1500 x 1000, W1 – Window Glazed – 2000 x 1000, V – Ventilator Glazed – 800 x 500, wall thickness – 300mm. All Dimensions are in mm. [28M]



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

Answer ONE Question from each Unit

All Questions Carry Equal Marks

All parts of the Question must be answered at one place

**UNIT-I**

1. a) Write differential lengths in Cartesian, spherical and cylindrical coordinate systems from known differential lengths; derive differential surfaces and differential volumes for the coordinate systems. 7M
- b) Derive the expression for  $\mathbf{E}$  due to infinite sheet of charge density ' $\rho_s$ ' C/m<sup>2</sup> placed in  $z=0$  plane using coulomb's law. 7M

**(OR)**

2. a) Three equal charges of '+Q' are placed at the corners of an equilateral triangle with side of length 'a'. Determine the charge to be placed at the centroid of the triangle so that charges are remain in equilibrium. 7M
- b) State and prove Gauss's law and write the applications. 7M

**UNIT-II**

3. a) State and explain continuity equation of current in integral form and point form 7M
- b) Explain and derive the boundary conditions for a conductor free space interface. 7M

**(OR)**

4. a) Derive the expression for capacitance of parallel plate capacitor 7M
- b) Obtain the capacitance of spherical plate capacitor using Laplace's equation. 7M

**UNIT-III**

5. a) State and explain Ampere's circuital law. 7M
- b) Derive an expression for magnetic field intensity  $\mathbf{H}$  due to infinitely long straight conductor 7M

**(OR)**

6. a) A Circular loop located on  $x^2+y^2 = 9$ ,  $z=0$  carries a direct current of 10A along  $\mathbf{a}_\phi$ . Determine  $\mathbf{H}$  at point (0,0,5) and (0,0,-5). 7M
- b) Obtain an expression for magnetic field intensity due to circular loop using Ampere's circuital law 7M

**UNIT-IV**

7. a) Derive Lorentz force equation & write short note on force on a differential current element 7M
- b) Derive the expression for torque on a current loop placed in magnetic field. 7M

**(OR)**

8. a) Two long parallel conductors are separated by 2 cm in air carrying current of 100 ampere flowing in opposite directions. Find the force per meter length of the conductor 7M
- b) Derive the expression for the self inductance of a solenoid.. 7M

**UNIT-V**

9. a) Explain in detail about Maxwell's equations for time varying fields. 7M
- b) Find the displacement current density within a parallel plate capacitor having a dielectric with  $\epsilon_r=10$ , area of plates  $A=0.01\text{m}^2$ , distance of separation  $d=0.05\text{mm}$  applied voltage is  $V=200 \sin 200t$ . 7M

**(OR)**

10. a) State and explain Poynting theorem. 7M
- b) For a lossy dielectric,  $\sigma=5\text{S/m}$  and  $\epsilon_r=1$ . The electric field intensity is  $\mathbf{E}=100\sin 10^{10}t$ . Find  $\mathbf{J}_c$ ,  $\mathbf{J}_d$  and frequency at which both have equal magnitudes. 7M

• **Bold letter represents vector**

**CODE: 16HS2004** **SET-1**  
**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI**  
**(AUTONOMOUS)**  
**II B.Tech II Semester Regular/Supl. Examinations, April,2019**  
**MANAGERIAL ECONOMICS AND FINANCIAL ANALYSIS**  
**(Mechanical Engineering)**

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

Answer ONE Question from each Unit  
 All Questions Carry Equal Marks  
 All parts of the Question must be answered at one place

**UNIT-I**

1. Define Managerial economics and explain its nature and scope 14M
- (OR)**
2. Explain Law of demand and its exceptions 14M

**UNIT-II**

3. What do you understand by elasticity of Demand? Explain the factors governing it 14M
- (OR)**
4. Discuss in detail about methods of demand forecasting 14M

**UNIT-III**

5. a) Define Production function? How can a producer find it useful? 7M
- b) What are external economies of scale 7M
- (OR)**
6. a) Discuss various Cost concepts 7M
- b) What are the limitations of BEA. 7M

**UNIT-IV**

7. Explain how price determination under monopoly in the long-run. 14M
- (OR)**
8. a) A project costs Rs.1,44,000. The average annual cash inflows are likely to be Rs.45,000 for a period of 5 years. Calculate the IRR for the project. 7M
- b) Explain why capital budgeting is necessary. 7M

**UNIT-V**

9. a) Prepare ledger posting for the following transactions. 2019 7M  
 Jan.5 Paid rent Rs.4,000  
 Jan.6 Sold goods worth Rs.50,000 to Suresh  
 Jan.7 Bought goods from Devi Rs.14,000  
 Jan.8 Paid salaries Rs.1,000
- b) Explain different accounting concepts 7M
- (OR)**
10. Identify the recording process of Journal Entry in a systematic manner? 14M

| Date       | Description                          | Amount Rs. |
|------------|--------------------------------------|------------|
| 01-07-2018 | Business Commenced with a cash       | 5,00,000   |
| 02-07-2018 | Deposited in ABC Bank Ltd            | 3,50,000   |
| 05-07-2018 | Goods Purchased from XYZ Ltd.        | 25,00,000  |
| 10-07-2018 | Sold Goods to RAJU Ltd.              | 45,00,000  |
| 15-07-2018 | Salaries & Rent Paid                 | 3,00,000   |
| 21-07-2018 | Received a Bank Cheque From RAJU LTD | 30,00,000  |
| 30-07-2018 | Paid to XYZ Ltd.                     | 20,00,000  |
| 31-07-2018 | Paid Office Expenses                 | 1,00,000   |

# AR16

**CODE: 16EC2007**

**SET-1**

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI  
(AUTONOMOUS)**

**II B.Tech II Semester Regular & Supplementary Examinations, April-2019**

**ANALOG COMMUNICATIONS  
(Electronics and Communication Engineering)**

**Time: 3 Hours**

**Max Marks: 70**

Answer ONE Question from each Unit

All Questions Carry Equal Marks

All parts of the Question must be answered at one place

## UNIT-I

1. a) Draw the block diagram of a Communication system and explain the role of Modulation in that. **7M**
- b) Draw the circuit diagram of Square law diode modulator and explain AM generation from this circuit with necessary equations. **7M**

**(OR)**

2. a) A sinusoidal carrier, modulated to a depth of 50% by a modulating signal produces side band frequencies of 5.005 MHz and 4.995MHz. The amplitude of each side frequency is 30V. Find the frequency and amplitude of the carrier signal. **7M**
- b) Prove that in AM, transmitting power is dependent on modulation index. **7M**

## UNIT-II

3. a) Explain the generation of DSB-SC using Ring modulator. **7M**
- b) Explain how a synchronous carrier can be generated using Costas loop. **7M**

**(OR)**

4. a) Draw the spectrum representation for DSB, DSB-SC and SSB-SC signals assuming a single tone message signal. **8M**
- b) Briefly describe about Vestigial sideband modulation. **6M**

## UNIT-III

5. a) Explain the Armstrong method of FM generation with neat diagrams. **8M**
- b) A carrier is frequency modulated by a sinusoidal modulating signal of frequency 2 kHz, resulting in a frequency deviation of 5 kHz. What is the bandwidth occupied by the modulated waveform? The amplitude of the modulating sinusoid is increased by a factor 2 and its frequency lowered by 500Hz. What is the new bandwidth? **6M**

**(OR)**

6. a) Explain the balanced slope detector method of FM detection. **8M**
- b) Explain TDM and FDM with necessary sketches. **6M**

## UNIT-IV

7. a) Briefly explain the effect of feedback on performance of AM transmitter. **7M**
- b) Draw the block diagram of a tuned radio frequency receiver and elaborate its limitations **7M**

**(OR)**

8. a) Explain the concept of Frequency stability in FM transmitter. **6M**
- b) Explain how selectivity is improved in superhetrodyne receiver. **8M**

## UNIT-V

9. a) Draw the PAM wave forms for single polarity and double polarity cases. Explain the generation of PAM signal using a transistor. **8M**
- b) Explain about threshold effect in FM systems **6M**

**(OR)**

10. a) Explain about Demodulation of PWM signals with neat sketches. **7M**
- b) Derive the expression for Figure of merit of SSB-SC receiver **7M**

# AR16

**CODE: 16CS2006**

**SET-1**

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI  
(AUTONOMOUS)**

**II B.Tech II Semester Regular & Supplementary Examinations, April-2019**

**COMPUTER ORGANIZATION AND ARCHITECTURE**

**(Common to CSE & IT)**

**Time: 3 Hours**

**Max Marks: 70**

Answer ONE Question from each Unit

All Questions Carry Equal Marks

All parts of the Question must be answered at one place

## **UNIT-I**

1. a) With neat diagram explain basic functional units of a computer. 7 M  
b) How to measure the performance of the CPU? 7 M
- (OR)**
2. Briefly explain about fixed point data representation. 14 M

## **UNIT-II**

3. a) Explain about Booth's multiplication algorithm. 7 M  
b) Write about division algorithm. 7 M
- (OR)**
4. Draw and explain about 4-bit arithmetic circuit for the addition, subtraction, increment and decrement by using 4X1 MUX and two selection lines. 14 M

## **UNIT-III**

5. List and explain about addressing modes with example. 14 M
- (OR)**
6. a) Explain about Register Transfer. 7 M  
b) Briefly explain about Logic Micro operations with example. 7 M

## **UNIT-IV**

7. a) Write about memory mapping techniques. 7 M  
b) What is an Auxiliary Memory? Write about Magnetic Disks. 7 M
- (OR)**
8. Briefly explain about daisy-chaining priority and Draw the circuit diagram for one stage of the daisy-chain priority arrangement. 14 M

## **UNIT-V**

9. a) Draw the pipeline for floating point addition and subtraction if the given floating point numbers are  $A = 0.1342 \times 10^3$  and  $B = 0.7330 \times 10^2$  then what are the sub operations performed in each segment. 7 M  
b) Briefly explain about Instruction Pipeline using Four-segment CPU pipeline? 7 M
- (OR)**
10. a) Describe about the parallel arbitration procedure used in multiprocessor organization. 7 M  
b) Write about synchronous and asynchronous data transfers. 7 M

# AR13

**CODE: 13HS2004**

**SET-1**

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI  
(AUTONOMOUS)**

**II B.Tech II Semester Supplementary Examinations, April-2019  
MANAGERIAL ECONOMICS AND FINANCIAL ANALYSIS  
(Common to CE & ME)**

**Time: 3 Hours**

**Max Marks: 70**

## **PART-A**

**ANSWER ALL QUESTIONS**

**[1 x 10 = 10 M]**

1. (a) Define Managerial Economics.  
(b) Describe the autonomous demand.  
(c) What is least cost combination of input?  
(d) What is CVP analysis?  
(e) Illustrate perfect competition.  
(f) List out the pricing objectives.  
(g) What are the components of working capital?  
(h) Explain the meaning of payback period.  
(i) List out different types of Accounting Concepts.  
(j) Identify the formulas for liquidity ratios.

## **PART-B**

**Answer one question from each unit**

**[5x12=60M]**

### **UNIT-I**

2. Define Law of demand. Explain its assumptions and exceptions. **(12M)**  
**(OR)**
3. Explain Price elasticity of demand? Price of a good rises from Rs. 10 to Rs. 12 per unit. As a result the demand for it falls from 120 units to 100 units. Calculate price elasticity of demand for the commodity? **(12M)**

### **UNIT-II**

4. Illustrate the stages of Law of variable proportion. **(12M)**  
**(OR)**
5. Explain BEP with graphical representation? And Answer the Following  
Bridal Shoppe sells wedding dresses. The cost of each dress is comprised of the following:  
Selling price of Rs. 1,000 and variable (flexible) costs of Rs. 400. Total fixed costs for Bridal Shoppe are Rs. 90,000. Calculate BEP in terms of units and value. **(12M)**

### **UNIT-III**

6. Illustrate the different methods of pricing. **(12M)**  
**(OR)**
7. Describe Price-output determination in perfect competition with graph. **(12M)**

### **UNIT-IV**

8. a) Explain the various branches of accounting. Discuss the types of Account and rules governing each account. **(7M)**  
b) Journalise the following transactions in the books of Madhu **(5M)**  
2003 January  
1. Madhu commenced with Rs. 15,000/-.  
2. Paid into Bank Rs. 10,000/-.  
3. Purchased goods from 'B' for Rs. 2000/-.  
4. Returned goods to 'B' for Rs. 200/-.  
5. Paid to 'B' in full settlement of A/C Rs. 1,700/-.

**(OR)**

## **AR13**

**CODE: 13HS2004**

**SET-1**

9. Explain the different types of ratios (12M)

### **UNIT-V**

- 10 The cost of a project is Rs. 50,000 the annual cash in flows for the next four years are Rs. 25,000. What is the pay back period for the project? (12M)
- (OR)
- 11 Explain the different types of capital budgeting method with principles (12M)

2 of 2

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# AR13

CODE: 13EE2010

SET-I

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI  
(AUTONOMOUS)

II B.Tech II Semester Supplementary Examinations, April-2019

ELECTRICAL CIRCUIT ANALYSIS-II  
(Electrical and Electronics Engineering)

Time: 3 Hours

Max Marks: 70M

## PART-A

ANSWER ALL QUESTIONS

[1 x 10 = 10 M]

1. a) Write any two advantages of three phase system over single phase system.
- b) In a three phase unbalanced, four wire star connected system, what is the current value in the neutral wire?
- c) Define time constant.
- d) When a series RL circuit is connected to a constant voltage source at  $t=0$ , find the current passing through the inductor  $L$  at  $t=0^+$ ?
- e) What is the laplace transform of  $e^{5t} f(t)$ ?
- f) The transient current in a lossfree LC circuit when excited from an AC source is an ----- sine wave.
- g) In the first Foster form, what indicates the presence of the first element capacitor  $C_0$ ?
- h) Write any two properties of Hurwitz polynomial.
- i) Write any two differences between active and passive filters
- j) Define characteristic impedance.

## PART-B

Answer one question from each unit

[5x12=60M]

## UNIT-I

2. a) A symmetrical 3-ph 3 wire 440V supply is connected to a star connected load as shown in fig below. The impedances in each branch are  $Z_R = (2+j3)\Omega$ ,  $Z_Y = (1-j2)\Omega$ ,  $Z_B = (3+j4)\Omega$  Find its equivalent delta connected load. The phase sequence is RYB

- b) The input power to a 3-ph load is 10KW at 0.8 pf. The watt meters are connected to measure the power. Find the individual readings of the watt meters 6M

(OR)

3. a) A 400V, three phase supply feeds an unbalanced three wire, star connected load. The branch impedances of the load are  $Z_R=(4+j8)\Omega$ ,  $Z_B=(3+j4)\Omega$  and  $Z_C=(15+j20)\Omega$ . Find the line currents and voltage across each phase impedance. Assume RYB phase sequence. 6M
- b) A balanced delta connected load of  $(2+j3)\Omega$  per phase is connected to a balanced three phase supply. The phase current is 10A. Find the (i) Total Active power (ii) Reactive power (iii) Apparent power in the circuit. 6M

### UNIT-II

4. a) A series RC circuit consisting of resistor of  $10\Omega$ , and capacitor of  $0.1F$  as shown in figure below. A constant voltage of  $20V$  is applied to the circuit at  $t=0$ . Obtain the current equation. Determine the voltage across resistor and capacitor 6M

- b) The switch in fig.1 has been in position A for a long time. At  $t=0$ , the switch moves to B. Determine  $v(t)$  for  $t>0$  and calculate its value at  $t=1$  sec and  $t=4$  sec. 6M

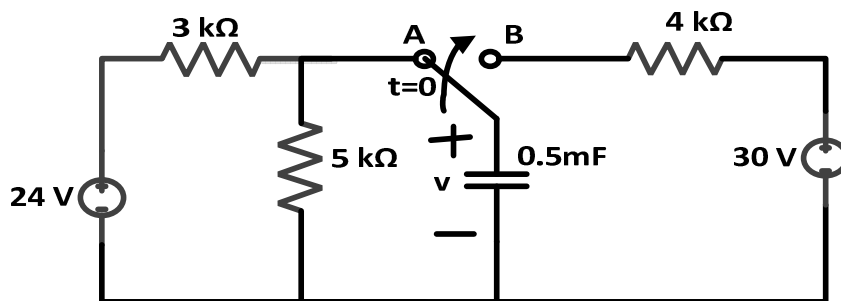


Fig.2

(OR)

5. a) Find  $i(t)$  in the circuit of fig.3 for  $t>0$ . Assume that the switch has been closed for a long time. 6M

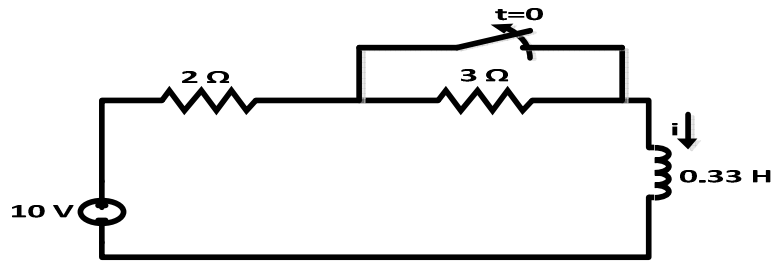


Fig.3

- b) Find  $v(t)$  for  $t < 0$  and  $t > 0$  in the circuit of fig.4

6M

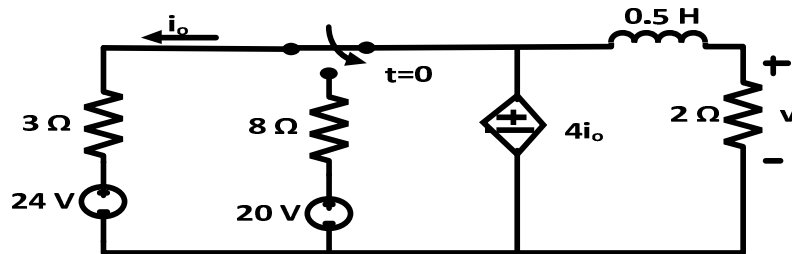


Fig.4

### UNIT-III

6. a) For the circuit shown in fig.5, determine the current when switch is closed at a time corresponding to  $\phi = 0$ . Assume initial charge on the capacitor is  $q_0 = 2$  coulombs with polarity shown. 6M

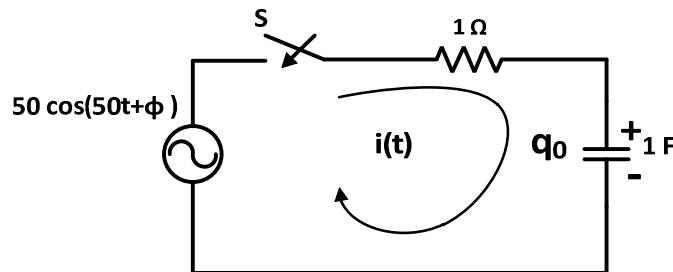


Fig.5

- b) For the circuit shown in fig.6, determine the total current delivered by the source when the switch is closed at  $t = 0$ . Assume no initial charge on the capacitor. 6M

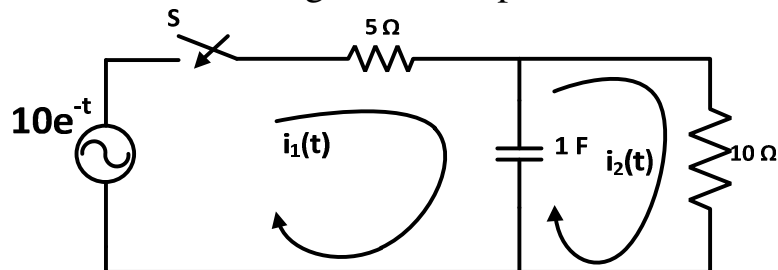


Fig.6

(OR)

7. a) For the circuit shown in fig.7, determine the transient current when the switch is moved from position 1 to position 2 at  $t = 0$ . The circuit is in steady state with the switch in position 1. The voltage applied to the circuit is  $v = 150 \cos(200t + 30^\circ)$  V. 6M

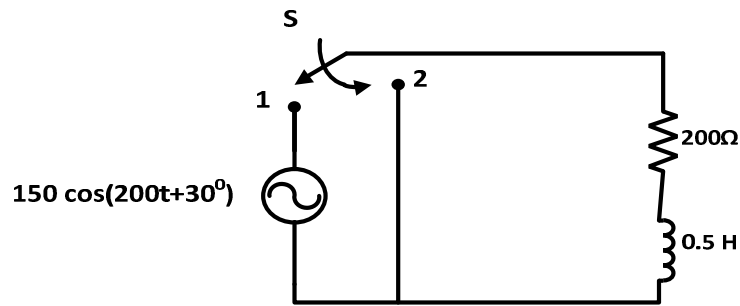


Fig.7

- b) Derive an expression for the current response of an RLC series circuit with sinusoidal excitation. Assume that the circuit is working in critical damping condition. 6M

#### UNIT-IV

8. a) Define positive real function and mention its properties. 4M

- b) Find the second Foster form and first Cauer form of the network whose driving point admittance is 8M

$$Y(s) = \frac{3(s+2)(s+5)}{s(s+3)}$$

(OR)

9. a) Find the First Cauer form realisations of driving point function given by 6M

$$Z(s) = \frac{10s^4 + 12s^2 + 1}{2s^3 + 2s}$$

- b) Find the second Foster form of RL network for the function 6M

$$Y(s) = \frac{s^2 + 8s + 15}{s^2 + 5s + 4}$$

#### UNIT-V

10. a) Design a constant-K high pass filter having a cut-off frequency of 1 kHz with a load resistance of 600Ω. 6M

- b) Design a band elimination filter(both T and  $\pi$  sections) having a design impedance of 600Ω and cut-off frequencies  $f_1=2$  kHz and  $f_2=6$  kHz. 6M

(OR)

11. a) Design a k-type band pass, T-section filter having a design impedance of 500Ω and cut-off frequencies 1kHz and 10kHz. 6M

- b) Design an m derived high pass filter (both T and  $\pi$  sections) with a cut-off frequency of 10kHz, design impedance of 5Ω and  $m=0.4$ . 6M

# AR13

CODE: 13EC2009 **SET-I**  
ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI  
(AUTONOMOUS)  
II B.Tech II Semester Supplementary Examinations, April-2019  
ANALOG COMMUNICATIONS  
(Electronics and Communication Engineering)

Time: 3 Hours

Max Marks: 70

## PART-A

ANSWER ALL QUESTIONS

[1 x 10 = 10 M]

1. a) Define the modulation index of AM wave?  
b) What is envelope distortion?  
c) What is the advantage of SSB over DSB?  
d) What are the advantages of Ring Modulator?  
e) What is Angle modulation? What are different types of Angle modulation?  
f) What is frequency deviation & phase deviation?  
g) What is the difference between High level and low-level transmitters?  
h) Define image frequency.  
i) Write Merits and Demerits of PAM  
j) Write SNR expressions for FM and AM.

## PART-B

Answer one question from each unit

[5x12=60M]

### UNIT-I

2. a) The RC load for a diode envelope detector consists of a 1000 pF capacitor in parallel with a 10-K resistor. Calculate the maximum modulation depth that can be handled for sinusoidal modulation at a frequency of 10 KHz if diagonal peak clipping is to be avoided 6  
b) Explain the generation of AM signal using Linear time invariant circuits? 6

(OR)

3. a) Describe the generation of AM wave using square – law modulator. 6  
b) Explain the demodulation of AM signal using envelope detector? 6

### UNIT-II

4. a) Draw the diagram of balanced modulator using transistors and show that it produces DSB-SC wave. 6  
b) Explain the generation of SSB signal .Also explain the power and bandwidth requirements of SSB. 6

**(OR)**

- |    |   |   |
|----|---|---|
| 5. | a) What is the effect of frequency and phase over error in demodulation of DSB-SC wave using synchronous detector | 6 |
|    | b) Discuss the generation of SSB signal using phase discrimination method.  | 6 |

**UNIT-III**

- |    |  |   |
|----|--|---|
| 6. | a) Which method of FM signal generation is the preferred choice, when the stability of the carrier frequency is of major concern? Discuss about the method in detail.                                      | 6 |
|    | b) An FM radio link has a frequency deviation of 30 kHz. The modulating frequency is 3 kHz. Calculate the bandwidth needed for the link. What will be the bandwidth if the deviation is reduced to 15 kHz? | 6 |

**(OR)**

- |    |  |   |
|----|--|---|
| 7. | a) Explain the generation of FM wave using direct method.        | 6 |
|    | b) With neat sketch explain the Frequency Division Multiplexing. | 6 |

**UNIT-IV**

- |    |  |   |
|----|--|---|
| 8. | a) Describe the variable reactance type and phase modulated FM transmitter.                                | 6 |
|    | b) List and discuss the factors influencing the choice of the intermediate frequency for a radio receiver. | 6 |

**(OR)**

- |    |   |   |
|----|---|---|
| 9. | a) With neat sketch explain AM Transmitter.                       | 6 |
|    | b) What is simple automatic gain control? What are its functions? | 6 |

**UNIT-V**

- |     |  |   |
|-----|--|---|
| 10. | a) Explain the demodulation procedure for PWM signal demodulation.   | 6 |
|     | b) Derive the expression for figure of merit of AM system for large value of modulation index ( $m > 1$ ). | 6 |

**(OR)**

- |     |   |   |
|-----|---|---|
| 11. | a) With neat sketch explain the generation of PPM from PWM.               | 6 |
|     | b) Explain the need for Pre-emphasis and Deemphasis circuits in FM system | 6 |

# AR13

**CODE: 13CS2008**

**SET-1**

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI  
(AUTONOMOUS)**

**II B.Tech II Semester Supplementary Examinations, April-2019**

**COMPUTER ORGANIZATION AND ARCHITECTURE  
(Common to CSE & IT)**

**Time: 3 Hours**

**Max Marks: 70**

## **PART-A**

**ANSWER ALL QUESTIONS**

**[1 x 10 = 10 M]**

1. a) What is Mainframe Computer?
- b) What are the data types?
- c) Give the instruction format of Vector instruction.
- d) What are the advantages and disadvantages of micro programming?
- e) Explain the significance of cache memory.
- f) Differentiate between static and dynamic memory.
- g) What is asynchronous communication?
- h) Explain about IOP?
- i) Write down the expressions for speedup factor in a pipelined architecture.
- j) Draw the diagram for instruction pipelining.

## **PART-B**

**Answer one question from each unit**

**[5x12=60M]**

### **UNIT-I**

2. a) Discuss about Error Detection codes. 6 M
- b) Write in brief bus inter connection structure. 6 M

**(OR)**

3. a) Discuss about arithmetic micro operation. 6 M
- b) Discuss about logic micro operations. 6 M

## **UNIT-II**

4. a) Discuss about functioning of micro-programmed control unit. 6 M  
b) Justify how Hardwired control unit is faster than micro-programmed control unit. 6 M

**(OR)**

5. Discuss the following in detail. 12 M  
a) Booths algorithm  
b) Array multiplier

## **UNIT-III**

6. a) Discuss the different mapping techniques used in cache memories and their relative merits and demerits. 6 M  
b) Discuss about memory management hardware. 6 M

**(OR)**

7. a) Draw and Explain about the virtual memory organization. 6 M  
b) Discuss the functioning of magnetic tape and optical disks used for data storage. 6 M

## **UNIT-IV**

8. a) Discuss the design of a typical input or output interface. 6 M  
b) List and briefly explain various input-output data transfer schemes. 6 M

**(OR)**

9. Explain the typical process involved in the interrupt initiated I/O and direct memory access. 12 M

## **UNIT-V**

10. a) Describe in detail about pipeline processing 6 M  
b) Briefly explain the applications of inter connection structures 6 M

**(OR)**

11. Explain the various trends in the computer architecture with suitable diagrams. 12 M