AR16

CODE: 16CE2010 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
II B.Tech II Semester Supplementary Examinations, July-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	Explain the importance of building bye laws?	[7M]
	b	What are the factors to be considered for good ventilation of residential building?	[7M]
2		Explain in detail about the characteristics of various types of 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 sketch.	[7M]
4.		What are the requirements for the following rooms in planning of residential building? i) Dining room. ii) Bed room.	[14M]
5.	a	Write short notes on floor area ratio. explain and differentiate floor area ratio with carpet area.	[7M]
	b	Explain the consideration of the height of buildings as per building bye-laws?	[7M]

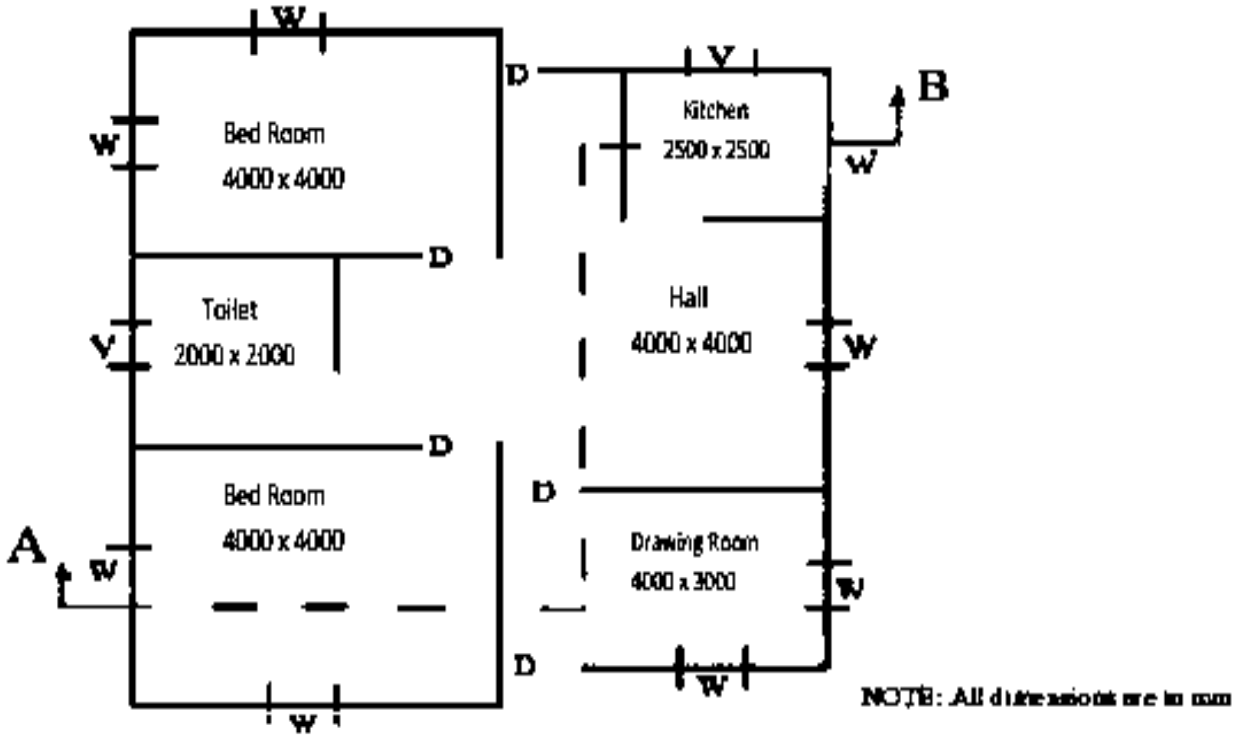
PART-B

Answer any **one** question from Part-B **[1x28=28M]**

6. a Draw the plan, elevation and isometric view of odd course of 2 brick Flemish bond? [18M]

   b Draw sign convention for the following materials: [10M]
   1) Brick 2) Glass 3) Sand filling 4) concrete 5) Timber

7. Following figure shows the line drawing of a residential building, draw to a scale of the following: [28M]
   (a) Plan. (b) Section along AB. (c) Front elevation.
   The following specifications are to be adopted:
   Foundation: Depth 1000 mm. C.C bed 1000 mm x 300 mm. Two footings with an off set of 50 mm and 250 mm thickness each.
   Basement: 600 mm high, thickness of wall at this level is 400 mm.
   Walls : Brick masonry in C.M.1:6, 300 mm thick
   Roof: R.C.C slab 120 mm thick.
   Provide the details of doors, windows, ventilators and steps etc. as per standard dimensions.



AR16

CODE: 16EE2010 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

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

ELECTRO MAGNETIC FIELD THEORY

(Electrical & Electronics 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)	Write about any two applications of Gauss laws	7M
	b)	Derive an expression for **E** due to line of charge?	7M
		(OR)	
2.	a)	A point charge of 5nC is at (0,1,0) and an infinite line charge at $\rho_{l=}$10nc/m along z-axis. Find E at (2,3,1)	7M
	b)	Four '+Q' charges are located at the corners of a square. Determine the charge to be placed at the centre of a square, so that charges remain equilibrium.	7M

UNIT-II

3.	a)	Explain conductor dielectric boundary conditions	7M
	b)	Obtain the capacitance of a coaxial cable	7M
		(OR)	
4.	a)	Obtain the capacitance of a parallel plate capacitor	7M
	b)	Explain the behaviour of conductors in an electric field	7M

UNIT-III

5.	a)	State Ampere's circuital law. Using Ampere's law, determine **H** due to infinite line of current.	8M
	b)	A circular loop is located on $x^2 + y^2 = 9$, z=0 carries a direct current of 10A along $\mathbf{a_{\acute{o}}}$. Determine H at (0,0,4) and (0,0,-4).	6M
		(OR)	
6.	a)	Calculate the magnetic field intensity due to a straight current carrying conductor	7M
	b)	What is Biot Savart's law? Explain	7M

UNIT-IV

7.		Calculate the force between two straight, long and parallel current carrying conductors	14M
		(OR)	
8.	a)	Given p(5,2,1) and Q(1,8,5) and I_1dl_1=-3a_yAm and I_2dl_2=-4a_zAm. Determine the force on I_2dl_2 and its direction.	8M
	b)	Determine the inductance of a toroid	6M

UNIT-V

9.	a)	What are statically and dynamically induced EMF's. State Faraday's Laws.	7M
	b)	Discuss about Maxwell's equation in integral form in detail	7M
		(OR)	
10.	a)	State and prove poynting theorem. State poynting vector.	14M

AR16

CODE: 16HS2004 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

II B.Tech II Semester Supplementary Examinations, July-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. a) Explain the inter linkages of managerial economics with other field of studies. **6M**
   b) Discuss the objectives of managerial economics **8M**

(OR)

2. a) Define Law of Demand. Why are the causes of downward sloping of demand curve? **7M**
   b) Explain the importance of law of demand. Differentiate between extension of demand and Increase in demand. **7M**

UNIT-II

3. a) Explain the following types of elasticity of demand **6M**
      i) Income ii) Cross
   b) What are the factors affecting elasticity of demand. Explain. **8M**

(OR)

4. a) What are the factors affecting demand forecasting. Explain **5M**
   b) Explain the following methods of demand forecasting **9M**
      i) Least squares ii) Moving average iii) Sample

UNIT-III

5. a) Mention the differences between returns to variable factor and returns to scale. **5M**
   b) Explain the modern approach of law of variable proportions with the stages of production including an illustration. **9M**

(OR)

6. a) Define cost. Explain any four different cost concepts. **5M**

   b) The operating cost result of a company for the last two periods is as follows: **9M**

Period	**Sales (in Rs)**	**Profit (in Rs)**
I	2,70,000	6,000
II	3,00,000	15,000

Calculate i) Profit / Volume ratio
ii) Break Even Point
iii) Profit when sales amounted to Rs 5,00,000
iv) Sales required to earn a profit of Rs 20,000

UNIT-IV

7. a) What are the factors governing market structures. Explain **6M**
   b) Explain the features of perfect competition market. **8M**

(OR)

8. a) Define capital budgeting. Explain its scope and importance. **7M**
   b) Calculate the net present value of two projects and suggest which of the two projects should be accepted assuming a discount rate of 10% **7M**

Year	**1**	**2**	**3**	**4**	**5**
Project A	10,000	15,000	8,000	6,000	4,000
Project B	40,000	30,000	10,000	5,000	4,000

Present Value of Re 1 @10%

Year	**PV @10%**
1	0.909
2	0.826
3	0.751
4	0.683
5	0.621

UNIT-V

9. a) Define Accounting. What are its objectives**?** **5M**
   b) Explain the principles of accounting. **9M**

(OR)

10. The following Trial Balance from the books of M/s MS Bros on 31st March, 2017. You are required to prepare a Trading Account, Profit & Loss Account for the year ended March 31, 2017 and a Balance sheet as on that date. **14M**

Particulars	**Debit (in Rs)**	**Credit (in Rs)**
Debtors	12,000	
Creditors		7,900
Capital		30,000
Drawings	2,900	
Rent	250	
Trade expenses	670	
Purchases	8,640	
Sales		14,290
Returns Outward		280
Carriage Inwards	190	
Wages	250	
salaries	2,920	
Stock (April 1, 2016)	1,200	
Discount received	3,100	
Discount allowed		240
Bad debts	180	
Plant and machinery	200	
Furniture and fittings	2510	
Cash in hand	1800	
Cash at Bank	500	
Total	52,710	52,710

AR16

CODE: 16EC2007 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

II B.Tech II Semester Supplementary Examinations, July-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)	Discover the basic elements of electronic communication systems? Illustrate each of them in brief.	**7M**
	b)	Explain the generation of AM using Switching Modulator	**7M**
		(OR)	
2.	a)	Derive an expression for an AM wave for an arbitrary baseband signal m (t) both in time domain and frequency domain. If the m (t) is a speech signal band limited to 300 Hz to 3.4 KHz, sketch the frequency spectrum of modulated signal.	**7M**
	b)	Explain about the Square law detector	**7M**

UNIT-II

3.	a)	Explain with neat sketches of DSBSC using ring modulator.	**8M**
	b)	Explain the demodulation of SSB and VSB waves	**6M**
		(OR)	
4.	a)	Explain the frequency discrimination method for generation of AM SSB Modulated wave	**8M**
	b)	Comparisons of AM,FM and PM	**6M**

UNIT-III

5.	a)	Explain the Balanced Frequency discriminator with neat sketches	**8M**
	b)	Comparisons of FM and AM	**6M**
		(OR)	
6.	a)	Explain the Frequency Division Multiplexing with neat sketches	**8M**
	b)	Explain about PLL	**6M**

UNIT-IV

7.	a)	Explain the Tuned radio frequency receiver	**7M**
	b)	Explain the Super heterodyne receiver	**7M**
		(OR)	
8.	a)	Explain the Classification of Transmitters	**7M**
	b)	Explain the frequency stability in FM Transmitter	**7M**

UNIT-V

9.	a)	Explain the Generation & demodulation of PWM	**7M**
	b)	Explain the Generation and demodulation of PPM	**7M**
		(OR)	
10.	a)	Explain the SNR for coherent reception	**7M**
	b)	Explain the Pre-emphasis & de-emphasis.	**7M**

AR16

CODE: 16CS2006 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

II B.Tech II Semester Supplementary Examinations, July-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)	Briefly explain about functioning of the computer.	7 M
	b)	Explain about floating point representation.	7 M
		(OR)	
2.	a)	Briefly explain about Bus interconnection architecture.	7 M
	b)	Write about various types of computer.	7 M

UNIT-II

3.		Briefly explain about flow chart for division algorithm and also step by step example also.	14 M
		(OR)	
4.	a)	Explain about multiplication algorithm.	7 M
	b)	Write an algorithm for adding & subtracting numbers in signed-2's complement representation.	7 M

UNIT-III

5.	a)	Write about any five addressing modes with example.	7 M
	b)	Data Transfer instructions with examples.	7 M
		(OR)	
6.		Explain about stack organization and also write about reverse polish notation with example.	14 M

UNIT-IV

7.	a)	Briefly explain about RAM and ROM with block diagrams.	7 M
	b)	Explain elements of cache design in detail.	7 M
		(OR)	
8.	a)	Briefly explain about block diagram of DMA controller.	7 M
	b)	What is the advantage of two-wired hand shaking method and detailed about data transfer between source & destination.	7 M

UNIT-V

9.	a)	Draw the pipeline timing diagram if data conflicts occur in RISC pipeline.	7 M
	b)	Write about multicomputers and multiprocessors. And also write about the characteristics of multiprocessors.	7 M
		(OR)	
10.		Write a program for adding two vectors A and B and produce vector C and also write the steps for multiplication of two 3x3 matrix A & B.	14 M

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AR13

CODE: 13HS2004 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

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

MANAGERIAL ECONOMICS AND FINANCIAL ANALYSIS

(Common to CE, ME Branches)

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

PART-A

ANSWER ALL QUESTIONS **[1 x 10 = 10 M]**

1. a) Define Demand
   b) Concept of National Income
   c) Define Production Function
   d) Economies of Scale
   e) Features of Monopoly
   f) Precedence Model
   g) Meaning of Capital Budgeting
   h) ARR
   i) Ledger
   j) Double Entry System

PART-B

Answer one question from each unit **[5x12=60M]**

UNIT-I

2.	a)	Elaborate about the Basic economic tools	6M
	b)	Explain Managerial Economics relation with other subjects	6M
		(OR)	
3.	a)	Demonstrate the methods for demand forecasting for a new product	6M
	b)	Explain the Statistical Methods for Demand Forecasting	6M

UNIT-II

4.	a)	Describe the Cobb-Douglas Production function	6M
	b)	Explain the Law of returns to scale	6M
		(OR)	
5.	a)	Explain Managerial importance and limitations of BEP	6M
	b)	Determination of Break-Even Point with a graphical representation	6M

UNIT-III

6. a) Explain the Features of Perfect Competition 6M
   b) How to determine Price-Output under Perfect Competition 6M

(OR)

7. a) Explain various Methods of Pricing 6M
   b) Describe the features of Joint Stock Companies 6M

UNIT-IV

8. a) Meaning of capital budgeting and explain its importance 4M
   b) A firm has many projects in hand with an expected return per annum 6%. As per the data given below, Do you recommend the project using NPV Method? 8M

Year	0	1	2	3	4	5	6
CIF	-	-	3000	4000	4000	4000	5000
COF	10000	20000	-	-	-	-	-

(OR)

9. a) Projects A and B requires an initial investment of Rs. 20,000 with a useful life 5 years the projected cash inflows for each year are as follows: 6M

Project A:

Year	1	2	3	4	5
Cash Inflow	7000	9000	8000	6000	10000

Project B:

Year	1	2	3	4	5
Cash Inflow	6000	8000	6000	5000	7000

Calculate Payback Period and appraise the projects.

   b) A Project requires an initial investment of Rs. 100000/- at a cost of capital 20%. The annual cash inflows generated by the project during its 5 Years of economic life are Rs. 30,000. Calculate IRR. 6M

UNIT-V

10. a) List out the principles of financial accounting 6M
    b) Sketch the formats for Journal, Ledger and Trial Balance 6M

(OR)

11. a) Explain Profitability ratios and solvency ratios 6M
    b) Describe the International financial reporting standards 6M

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AR13

CODE: 13EE2010 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
II B.Tech II Semester Supplementary Examinations, July-2019

ELECTRICAL CIRCUIT ANALYSIS-II
(Electrical and Electronics Engineering)

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

PART-A

ANSWER ALL QUESTIONS **[1 x 10 = 10 M]**

1. a) Two watt meter readings are 500w and 45w. Calculate the power factor?.
   b) Give the relation between line and phase voltages for balanced star connected system?
   c) Why can not the current in a pure inductor change in zero time?
   d) Define time constant?
   e) Define transient response?
   f) Why the voltage drop across the capacitor does not change instantaneously?
   g) What is meant by positive real function
   h) List the any two properties of RL impedance function
   i) What is high pass filter?
   j) List the types of filters.

PART-B

Answer one question from each unit **[5x12=60M]**

UNIT-I

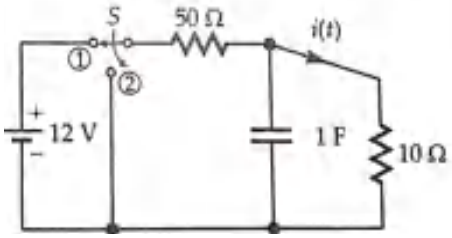
2. A star connected alternator has 231V/ph. It supplies a set of lighting load at phase R, having phase impedance of $40\angle 0^0\,\Omega$, a capacitive load of $10\angle -60^0\,\Omega$ at phase Y and an inductive load of $5\angle 45^0\,\Omega$ at phase B. The loads are connected in delta. Obtain the phase currents, line currents and line voltages. 12M

(OR)

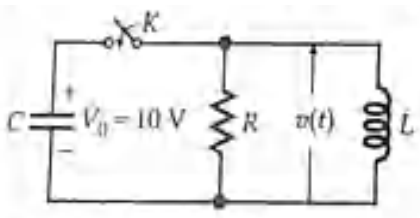
3. a) Show that the total power in a 3-phase, 3-wire system using the two-wattmeter method of measurement is given by the sum of the wattmeter readings. Draw a connection diagram and phasor diagram. Also derive the expression for power factor in terms of two wattmeter readings 6M
   b) Derive the expressions for converting a star networking into a delta network. 6M

UNIT-II

4. a) For the fig. given below , Find $i(t)$ at $t = 0^+$ following switching of S from (1) to (2). Assume steady state of the circuit while S was at (1). 6M



   b) For the fig. given below, represents a parallel RLC circuit where $R = 0.1\Omega, L = 0.5H$ and C is 1F. Capacitor C has an initial voltage of 10V. Obtain $v(t)$. 6M



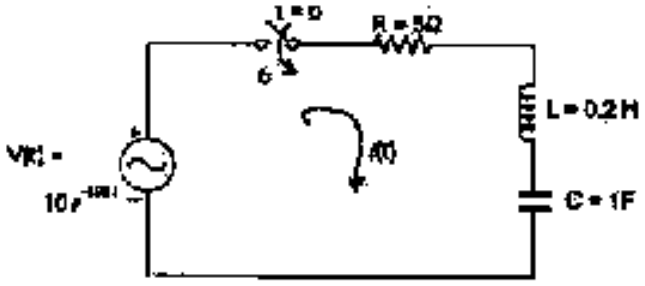
(OR)

5. a) For the circuit shown and figure below find i (t) at t= 6 Sec. 6M

b) Explain the transient response of series R –C circuit having DC Excitation

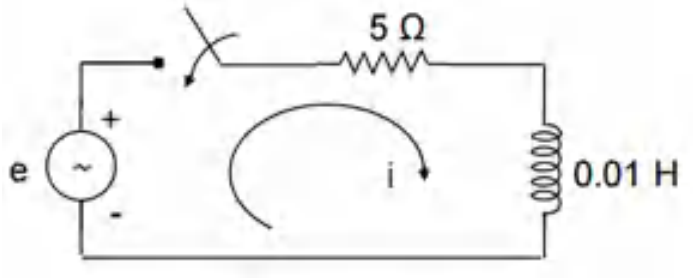
UNIT-III

6. A series RLC circuit with R = 5 Ω, L = 0.2 H and C = 1F has a voltage source $V = 10\ e^{-100t}$ volts applied at t = 0. Find the current through the circuit using Laplace transform method. 12M



(OR)

7. In the initially relaxed RL circuit shown, the sinusoidal source of e = 100 sin (500 t) V is applied at time t = 0. Determine the resulting transient current for time t > 0 12M



UNIT-IV

8. Obtain Cauer- I form for given Network function 12M

$$Z(S) = \frac{2S^5 + 12S^3 + 16S}{S^4 + 4S^2 + 3}$$

(OR)

9. Obtain Foster- I form for given Network function 12M

$$Z(S) \frac{s^2 + 4s + 3}{s^2 + 2s}$$

UNIT-V

10. a) Design K-type high filter having a design impedance of 600 ohm and cut-off frequency 10KHz. 6M

b) Design K-type low filter having cut-off frequency 796Hz.when terminated in 600 ohm resistance, in both the T and π configurations. 6M

(OR)

11. a) Design K-type high filter having cut-off frequency 5kHz.and nominal characteristic impedance 600 ohm resistance, in both the T and π configurations. 6M

b) Design K-type low filter to match with a line having characteristic impedance 500 ohm and to pass frequency upto 5 KHz 6M

AR13

CODE: 13EC2009 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
II B.Tech II Semester Supplementary Examinations, July-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) What are the frequency components in an AM wave ?
   b) How can aliasing be avoided?
   c) What are the demodulation methods for DSB-SC signal
   d) State application areas of SSB
   e) Define the percent modulation in FM.
   f) Why FM is called as a type of angle modulation
   g) What is the standard IF for AM radio?
   h) Which blocks of the AM receiver affect the sensitivity?
   i) What are the different types of PTM systems
   j) Why is PAM not used in practice

PART-B

Answer one question from each unit **[5x12=60M]**

UNIT-I

2. Explain the Square law method of generation of AM signal and give merits and demerits of this method. 8+4M

(OR)

3. Explain the concept of amplitude modulation with mathematical analysis. Draw the frequency spectrum of the AM signal. 12M

UNIT-II

4. a) Discuss the generation of SSB signal using phase shift method. 6M
   b) Explain the generation of DSB-SC signal using balanced modulator? 6M

(OR)

(OR)

5.	a)	Explain the generation of SSB signal using filter method.	6M
	b)	Compare various AM techniques.	6M

UNIT-III

6.	a)	Write short notes on frequency division multiplexing.	6M
	b)	Draw the block diagram of balanced frequency discriminator and explain it for demodulation of FM signal.	6M

(OR)

7.		With a neat block diagram explain the pre-emphasis and de-emphasis in FM.	12M

UNIT-IV

8.		Draw the block diagram of a super heterodyne receiver and explain its operation? What are the advantages of this receiver?	12M

(OR)

9.		With the neat block diagram explain the concept of FM Transmitter.	12M

UNIT-V

10.		Prove that figure of merit of DSBSC receiver using Coherent detector is unity	12M

(OR)

11.		Mention and explain different methods for generation of PWM	12M

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AR13

CODE: 13CS2008 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

II B.Tech II Semester Supplementary Examinations, July-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 Von- Neumann architecture of a computer?
   b) What are the data types.
   c) Give the instruction format of Vector instruction.
   d) List the addressing modes.
   e) Explain the significance of cache memory.
   f) Draw DMA interface.
   g) What are levels of memory hierarchy?
   h) Explain about IOP.
   i) Explain RISC & CISC briefly.
   j) Draw the diagram for instruction pipelining.

PART-B

Answer one question from each unit **[5x12=60M]**

UNIT-I

2.	a)	Explain with example floating point representation	6 M
	b)	Explain with example fixed point representation.	6 M
		(OR)	
3.	a)	Explain error detection code with example.	6 M
	b)	Discuss about logic micro operation.	6 M

UNIT-II

4.		Explain CPU organization with its internal registers.	12 M
		(OR)	
5.		Explain Booths algorithm with example.	12 M

UNIT-III

6.	a)	What is memory hierarchy? Explain in detail.	6 M
	b)	Discuss about memory management hardware.	6 M
		(OR)	
7.		Construct a 16*2 ROM using 8*2 ROM and explain its functioning.	12 M

UNIT-IV

8.		Explain about Direct Memory Access in detail.	12 M
		(OR)	
9.	a)	Explain about the peripheral devices.	6 M
	b)	Explain about the I/O processor briefly.	6 M

UNIT-V

10.	a)	Describe in detail about pipeline processing	6 M
	b)	Explain about RISC computer architecture.	6 M
		(OR)	
11.	a)	Explain differences between Multiprocessors and Multi computers.	6 M
	b)	Explain about ILP.	6 M