AR18

CODE: 18EST102 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
I B.Tech I Semester Regular Examinations, Nov / Dec-2018

PROGRAMMING FOR PROBLEM SOLVING
(Common to CE, CSE, IT Branches)

Time: 3 Hours **Max Marks: 60**

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 structure of C Program. 6M

   b) Explain about conditional operator in C with example. 6M

(OR)

2. a) Draw a flow chart to read a number 'n' & display sum of natural numbers up to n. 6M
   b) find value of b in the following expression by a=8 with Precedence. B=a++ + ++a - --a + --a; 6M

UNIT-II

3. a) Write a C Program to find the sum of all integers between 100 and 325 that are divisible by 7 and 3. 6M

   b) Write a C Program to read a five Digit number and a single digit number. Count and display how many times the single digit number occurs in five Digit number. 6M

(OR)

4. a) Discuss about nested if statement with example. 6M
   b) Explain about Entry and Exit Control Loops available in C. 6M

UNIT-III

5. a) Explain the categories of user defined functions. 6M
   b) Differentiate auto and static storage class with suitable example. 6M

(OR)

6. a) Write a C Program to read a M X N Matrix and print it's Transpose. 6M
   b) Explain about function prototype and Function call. 6M

UNIT-IV

7. a) Explain how to declare and initialize pointers with examples. 6M
   b) Write a C Program to interchange (swap) given two numbers by a function with call by value. 6M

(OR)

8. a) Write the necessary prototype & function to find sum of two numbers with pointers. 6M
   b) Briefly explain about Pointer Arithmetic. 6M

UNIT-V

9. a) Define a structure to store details as name of voter, age, Date of Birth (DD/MM/YYYY Format) and gender. Display list of female senior citizen voters (60 Years and above). 6M
   b) Differentiate between structure and union with example. 6M

(OR)

10. Write a C Program to read a file "marks.dat" with rollno, name and marks in 3 subjects. Calculate total marks, percentage of marks and store details of failed students (below 40 percent) into a file"fail.dat". 12M

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CODE: 18EET101 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

I B.Tech I Semester Regular Examinations, Nov / Dec – 2018

SWITCHING THEORY AND LOGIC DESIGN

(Electrical and Electronics Engineering)

Time: 3 Hours **Max Marks: 60**

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) (i)Given that $16_{(10)}=100_b$, Find the value of the "b" 6M
(ii)Convert the following numbers with the given radix to decimal and then to binary (a) $4433_{(5)}$
(b)5654_7
b) Represent BCD numbers 0 to 9 in excess-3 code. 6M

(OR)

2. a) Convert the binary number 10110010 into 6M
(i) Hex (ii) octal (iii) decimal
b) Represent 645_{10}, 319_{10} in 9's complement method and 10's compliment method. 6M

UNIT-II

3. a) Convert the given expression in standard SOP form 4M
f (A,B,C) =AC+AB+BC
b) Simplify the following Boolean expressions to a minimum numbers of literals. 8M
(i) $\bar{x}\bar{y} + x\,y + \bar{x}$y (ii) (x+y) (x+$\bar{y}$)

(OR)

4. a) show that 6M
(A+$\bar{B}$) (B+$\bar{C}$) (C+$\bar{D}$)(D+$\bar{A}$) =($\bar{A}$+B)($\bar{B}$ + C)($\bar{C}$ + D)($\bar{D}$ + A)
b) Reduce the following function using Karnaugh map technique and implement using logic gates. 6M
F (A,B,C,D) = $\sum m$(0,2,4,5,6,8,10,12,13,14,15)

UNIT-III

5.	a)	Realize a half adder using logic gates.	6M
	b)	Construct full adder using half adders?	6M
		(OR)	
6.	a)	Explain the operation of half subtractor? Realize full subtractor using logic gates	6M
	b)	Design a 4- bit parallel adder using full adders	6M

UNIT-IV

7.	a)	Draw the circuit for 3 to 8 decoder and explain.	6M
	b)	Design 8 x 1 multiplexer using gates.	6M
		(OR)	
8.	a)	Design 1 x 8 Demultiplexer using gates.	6M
	b)	Design 1-bit comparator using basic gates.	6M

UNIT-V

9.	a)	Draw the logic diagram of a RS flip flop using NAND gates and explain its operation.	6M
.	b)	Draw the logic diagram of a JK flip flop using NAND gates and explain its operation.	6M
		(OR)	
10.	a)	Design mod 6 ripple counter using T flip-flops	10M
	b)	What are the basic types of shift registers?	2M

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CODE: 18EST104 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

I B.Tech I Semester Regular Examinations, Nov / Dec – 2018

ELEMENTS OF WORKSHOP TECHNOLOGY

(Mechanical Engineering)

Time: 3 Hours **Max Marks: 60**

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)	Define Manufacturing & Explain processes effecting change in properties?	6 M
	b)	Give brief classification of materials used in manufacturing:	6M
		(OR)	
2.		Explain four basic workshop processes.	12M

UNIT-II

3.	a)	How do you classify chisels used in wood work? Describe them in brief?	6M
	b)	Describe the following : (i) Tenon saw and (ii) Bow saw	6M
		(OR)	
4.	a)	With the help of neat sketch ,describe the following (i) Pincer and (ii) Rasp	6M
	b)	Sketch the following joint made in carpentry shop (i) half lap Joint and (ii) Mortise and Tenon joint	6M

UNIT-III

5.	a)	With the help of suitable sketches explain the construction and working of (i) V Block and (ii) surface plate	6M
	b)	Sketch and Describe an Engineer's try square	6M
		(OR)	
6.	a)	Write short notes on (i) Screw driver and (ii) Spanner	6M
	b)	Explain the following Fitting operations: (i) Tapping and (ii) Dieing	6M

UNIT-IV

7.	a)	What are the common hand tools Used in sheet metal work? Explain briefly?	6M
	b)	Describe the following with sketches: (i) Hand shear and (ii) Mallet	6M
		(OR)	
8.		List the sheet metal operations and explain any three methods?	12M

UNIT-V

9.	a)	Describe with sketches (i) Smithy's Forge and (ii) Anvil?	6M
	b)	b) Write short Notes on Bick Iron and Set hammer?	6M
		(OR)	
10.	a)	Sketch and show the difference between Hand hammer and Sledge hammer?	6M
	b)	Explain the following operations with sketches: (i) Upsetting and (ii) Drawing down?	6M

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CODE: 18ECT101 SET-1

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

I B.Tech I Semester Regular Examinations, Nov / Dec – 2018

ELECTRONIC DEVICES

(Electronics and Communication Engineering)

Time: 3 Hours **Max Marks: 60**

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)	Differentiate among conductor, insulator and semiconductor using energy band concept. Also differentiate between N type and P type semiconductor materials.	8M
	b)	Estimate the value of resistivity of intrinsic germanium at 300^0K. Assume intrinsic concentration= $2.5*10^{13}$ cm^3, Electron mobility= 3800 cm^2/V-s, Hole mobility= 1800cm^2/V-s, Electron charge= $1.6*10^{-19}$.	4M
		(OR)	
2.	a)	Explain the drift and diffusion currents for semiconductor.	6M
	b)	Derive the expression for conductivity of extrinsic n-type and p-type semiconductors.	6M

UNIT-II

3.	a)	Explain how current flow is possible through a PN junction diode.	6M
	b)	A reverse bias voltage of 90V is applied to a germanium diode through a resistance R. The reverse saturation current of the diode is 50μA at an operating temperature of 25^0C. Compute the diode current and voltage for (i) R=10MΩ (ii) R= 100MΩ.	6M
		(OR)	
4.	a)	Explain about various current components in a forward biased PN junction diode.	8M
	b)	A certain PN junction diode has a leakage current of 10^{-14}A at room temperature of 27^0C and 10^{-9}A at 125°C. The diode is forward biased with a constant current source of 1mA at room temperature. If the current is assumed to remains constant. Calculate the junction barrier voltage at room temperature and at 125^0C.	4M

UNIT-III

5.	a)	Why transistor is considered as current control device? Explain?	4M
	b)	Explain the input and output characteristics of the transistor in CB configuration with diagrams.	8M
		(OR)	
6.	a)	Define α and β of a transistor. Derive the relation between them.	4M
	b)	With neat sketches explain the cut-off region, active region and saturation region of transistor output characteristics for CE configuration.	8M

UNIT-IV

7.	a)	Why FET is called unipolar device? What are the important characteristics of FET?	6M
	b)	State the advantages and disadvantages of FET over BJT.	6M
		(OR)	
8.	a)	Draw the Structure of p-channel JFET and explain its principle of operation.	6M
	b)	With neat sketch explain the drain and transfer characteristics of Depletion MOSFET.	6M

UNIT-V

9.	a)	With the help of energy band diagrams, explain the concept of tunnelling.	6M
	b)	Explain the working principle of SCR with V-I characteristics.	6M
		(OR)	
10.	a)	What is negative resistance region in UJT? Explain with the help of characteristics.	8M
	b)	Describe the construction and working of LED with the help of relevant diagrams.	4M