AR18

CODE: 18EST102 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

I B.Tech I Semester Supplementary Examinations, January-2019

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) Define algorithm and flow chart. Write an algorithm and draw flow chart for area and perimeter of circle. 6M
   b) Explain in Brief about bitwise operators in C 6M

(OR)

2. a) Draw a flow chart to read a positive number and display message whether it is a Single/Double/Multiple Digit Number. 6M
   b) List various unary operators in C. 6M

UNIT-II

3. a) Body Mass Index(BMI)= Weight in Kilograms / (Height in Meters X Height in Meters). 6M

BMI	BMI Category
Less than 19	Under Weight
Between 19 and 25	Ideal Weight
Above 25	Over Weight
Above 30	Obese.

Write a C Program to input necessary data and display his/her BMI Category.

   b) Write a C Program to find the average of given N positive integers using a Loop, and then display the average. 6M

(OR)

4. a) Explain about for and while looping control statements with example program. 6M
   b) Write a C Program to find Biggest of given three numbers using nested if statement. 6M

UNIT-III

5. a) Write a C Program to input a matrix(square) of size N X N and display it's right diagonal Elements only. 6M
   b) Define String and list any four String handling functions with examples 6M

(OR)

6. a) Define recursion? Write a C-Program to find factorial of a given number using recursion 6M
   b) Differentiate actual arguments & formal arguments. 6M

UNIT-IV

7. a) Explain in brief about dynamic memory allocation and functions used for it. 6M
   b) write a c program to find biggest element of given array using pointers. 6M

(OR)

8. a) List advantages of Pointers in Programming. 6M
   b) Write a C Program to swap given two numbers using pointers. 6M

UNIT-V

9. a) Explain about file handling functions. 6M
   b) Describe various modes of file opening 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 students above 70 percent into a file "Dist.dat". 12M

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CODE: 18EET101 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

I B.Tech I Semester Supplementary Examinations, January-2019

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) Perform the following 6M
   (a) $(475.25)_8=(\ )_{10}$ (b)$(9B2.1A)_H=(\ )_{10}$
   b) What is meant by BCD? Obtain binary codes for decimal digits in BCD and 2421 codes? 6M

(OR)

2. a) (i)Write XS 3-codes for $(267)_{10},(175)_{10},(463)_{10}$ 6M
   (ii)Convert $3A7_6$ into Gray number.
   b) Represent $(672)_{10},(475)_{10},(512)_{10}$ in 9's complement and 10's complement methods. 6M

UNIT-II

3. a) (i)Convert the given expression in standard POS form 6M
   f(A,B,C)=(A+B) (B+C)(A+C)
   (ii)Simplify the following expression
   $a+a\bar{b}+a\bar{b}\bar{c}+a\bar{b}\bar{c}\bar{d}+.....$
   b) Simplify the expression $Z=AB+A\overline{B(\bar{A}\bar{C})}$ 6M

(OR)

4. a) Reduce the following function using K-map technique 6M
   f(A,B,C,D)=$\sum m(0,1,4,8,9,10)$
   b) Express the following function as sum of minterms and product of maxterms 6M
   F(A,B,C,D)=$\bar{B}D+\bar{A}D+BD$

UNIT-III

5. a) Realize a half subtractor using gates. 6M
   b) Design a full sub tractor using gates. 6M

(OR)

6. a) Realize a full adder using gates. 6M
   b) Design 4 - Bit parallel adder. 6M

UNIT-IV

7. a) Design 8:1multiplexer using gates. 6M
   b) Design 3:8 decoder using gates. 6M

(OR)

8. a) Implement the following functions using using demultiplexer 6M
   $F_1(A,B,C,)=\sum m(0,3,7)$
   $F_2(A,B,C)=\sum m(1,2,5)$

   b) Distinguish between a multiplexer and a demultiplexer 6M

UNIT-V

9. a) Explain Synchronous and ripple counters 6M
   b) Explain JK flipflop with its truth table. 6M

(OR)

10. a) Draw and explain the operation of Universal shift register 10M
    b) What are the applications of shift register 2M

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CODE: 18EST104 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

I B.Tech I Semester Supplementary Examinations, January-2019

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.		Define manufacturing. Classify and explain various types of manufacturing processes and cite examples.	12M
		(OR)	
2.		Explain basic workshop processes. List out various tools used each basic workshop processes.	12M

UNIT-II

3.	a)	Give a neat sketch of iron jack plane and name its different parts.	8M
	b)	State the difference between cross cut saw and tenon saw	4M
		(OR)	
4.	a)	Discuss briefly with neat sketches the various planning and striking tools.	8M
	b)	State the difference between try square and bevel square.	4M

UNIT-III

5.	a)	State the different types of reamers and give their uses.	6M
	b)	Write short notes on chipping and tapping.	6M
		(OR)	
6.	a)	How many types of punches are used in bench work. Describe centre punch with the help of a neat sketch.	9M
	b)	What precautions are to be taken while fileing.	3M

UNIT-IV

7.	a)	Why snips are used? Give a description of some of them with sketches.	8M
	b)	State the difference between half moon stake and pipe stake.	4M
		(OR)	
8.	a)	What is the difference between piercing and blanking. Why edge forming is necessary in sheet metal work.	8M
	b)	State the difference between straight snip and curved snip.	4M

UNIT-V

9.	a)	Why heat treatment is necessary for forging.	4M
	b)	What do you understand from ‘open fire’ and ‘stock fire’? Which one of the two is more advantageous and why?	8M
		(OR)	
10.	a)	Sketch and show the difference between hand hammers and sledge hammers.	6M
	b)	Explain with neat sketch Upsetting and Drifting operations.	6M

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CODE: 18ECT101 SET-1

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

I B.Tech I Semester Supplementary Examinations, January-2019

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)	Derive an expression for conductivity in an intrinsic semiconductor in terms of electron & hole concentration	6M
	b)	Calculate the resistivity of intrinsic germanium at 300^0K.Assume $\eta_i=1.5\times10^{10}/cm^3$ $\mu_n=300\ cm^2/v\text{-}s$ and $\mu_p=1800\ cm^2/v\text{-}s$.	6M
		(OR)	
2.	a)	Explain the principle of Hall effect with diagram and write its applications	6M
	b)	Explain the drift and diffusion currents for a semiconductor.	6M

UNIT-II

3.	a)	How a PN junction diode works? Draw and explain V-I characteristics of PN diode wit neat diagram.	6M
	b)	When a reverse bias is applied to a germanium pn junction diode, the reverse saturation current at room temperature is 0.3 μA. Determine the current flowing in the diode when 0.15 V forward bias is applied at room temperature.	6M
		(OR)	
4.	a)	Explain the terms Diffusion capacitance and Transition capacitance.	6M
	b)	How does a Zener diode maintain constant output voltage?	6M

UNIT-III

5.	a)	Prove that the transistor acts an amplifier with suitable circuit diagram.	6M
	b)	Determine the value of the base current of a CB configuration whose current amplification factor is 0.92. Emitter current is 1mA.	6M
		(OR)	
6.	a)	With necessary diagram explain the output characteristics of CB configuration	6M
	b)	For a silicon, α=0.995 emitter current is 10mA & leakage current I_{C0}=0.5μA. Find I_C, I_B, β, and I_{CEO}.	6M

UNIT-IV

7.	a)	Explain the working of FET with neat diagram and relevant characteristics. Indicate each region of the characteristics.	6M
	b)	A FET has a drain current of 4 mA. If I_{DSS} = 8 mA and $V_{GS\ off}$ = -6V. Find values of V_{GS} and V_P.	6M
		(OR)	
8.	a)	Draw the drain characteristics of depletion mode MOSFET. Explain different operating regions.	6M
	b)	Define the terms μ, g_m and r_d.	6M

UNIT-V

9.		From the energy band diagram explain the V-I characteristics of a tunnel diode. Indicate the negative resistance portion.	12M
		(OR)	
10.	a)	Explain the principle and working of photodiode.	6M
	b)	Explain the working of varactor diode and list out its applications.	6M

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