

B. Tech. (CSE) (II Yr.)

Total Pages : 3

Roll No. ....

Course No. : CS-214

M-I/87

Second Year B. Tech. of the Four Year  
Integrated Degree Course  
Examination, 2016-17

(Computer Science Engineering)

SEMESTER-I

**PRINCIPLES OF PROGRAMMING LANGUAGES**

Time : Three Hours

Maximum Marks : 80

*"Do not write anything on question paper except Roll Number otherwise it shall be deemed as an act of indulging in use of unfair means and action shall be taken as per rules."*

- (i) Attempt **five** questions in all.
- (ii) The Question Paper has **four** Units. Each unit has **two** questions.
- (iii) Attempt at least **one** question from each Unit.
- (iv) Answer should be to the point.
- (v) All questions carry equal marks.

M-I/87/I/2016-17/80/ZZ/195

P. T. O.

## UNIT-I

1. (a) Compare and contrast compiler and interpreter. 8  
(b) Explain in detail design of virtual computer. 8
2. (a) What are virtual machines? Which languages have adopted virtual machines? Explain. 8  
(b) Explain the features of good programming languages. 8

## UNIT-II

3. (a) What are the different phases of compiler? What is the significance of symbol table in compilation? 8  
(b) Explain with suitable example, how enumerated data type helps in programming. 8
4. (a) Explain type checking and type equality with suitable example. 8  
(b) Explain with suitable example, various scalar and composite data types. 8

## UNIT-III

5. (a) Explain type definitions and its equivalence in detail. 8

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- (b) Explain polymorphism. How it can be used in C++? 8
6. (a) With suitable example in C++, explain exception and how it can be handled? 8
- (b) What is sequence control? Explain its types. 8

#### UNIT-IV

7. (a) What are the different ways in which parameters can be passed? Explain with suitable example. 8
- (b) Compare C and C++ language at least on five different parameters. 8
8. (a) What is recursion? Is recursion always advantageous? Explain. 8
- (b) What is storage management? Explain any one method in detail. 8

B. Tech. (EE/CSE/IT) (II Yr.)

Total Pages : 4

Roll No. ....

Course No. : EE-212(EE/CSE/IT)

M-I/13

Second Year B.Tech. of the Four Year Integrated  
Degree Course Examination, 2016-17

(COMPUTER SCIENCE AND ENGINEERING/  
ELECTRICAL/INFORMATION TECHNOLOGY)

SEMESTER-I

**ELECTRICAL MEASUREMENT & INSTRUMENTS**

(Common for Electrical, Computer Science and  
Engineering, Information Technology)

Time : Three Hours

Maximum Marks : 50

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- (iv) Answer should be to the point.

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P. T. O.

- (v) All questions carry equal marks.
- (vi) Assume suitable data, if necessary and indicate the same clearly.

### UNIT-I

1. (a) Why shunt is usually used in Voltmeter and Ammeter ? A moving coil instrument has a resistance of  $5\Omega$  and gives full deflection of 100 mV. Show, how the instrument may be used to measure :
- (i) Voltage up to 50 V
  - (ii) Current up to 10 A. 5
- (b) Explain the principle and construction of Electrodynamic type instruments with the help of diagram. 5
2. (a) Define the current and voltage sensitivity of Galvanometer. 5
- (b) Explain vibration Galvanometer with its construction. Also draw the diagram. 5

### UNIT-II

3. (a) Explain in detail, Crompton's type potentiometer with diagram. 5

- (b) What are the applications of DC potentiometer ? Explain any two in detail with diagram. 5
4. (a) Write different methods of measuring high resistance and medium resistance. Explain the loss of charge method for measuring high resistance. 5
- (b) Why guard circuits are used ? Explain. What are the difficulties come in measurement of high resistance ? 5

### UNIT-III

5. (a) How capacitance and the dissipation factor can be calculated by using Schering bridge ? Draw its phasor diagram also. 5
- (b) A Maxwell capacitance bridge consist of the components in their arms whose values at balance condition is :
- $R_2 = 400 \Omega$ ,  $R_3 = 600 \Omega$ ,  $R_4 = 1000 \Omega$ ,  $C_4 = 0.5 \mu\text{F}$ .
- Calculate the values of  $R_1$  and  $L_1$ . Calculate also the value of storage factor (Q) for coil, if frequency is 1000 Hz. 5
6. (a) What is the use of CT and PT ? Explain two types of errors present in CT. 5

- (b) Explain the terms of Instrument transformer
- (i) Transformation ratio
  - (ii) Nominal ratio
  - (iii) Turns ratio
  - (iv) Ratio correction factor
  - (v) Phase angle error.

5×1=5

#### UNIT-IV

7. (a) Explain step by step method of determination of B-H curve with the help of diagram. 5
- (b) Explain TVM using FET as input stage with the help of diagram. 5
8. (a) What is DVM ? Explain Ramp type DVM and draw its block diagram also. 5
- (b) In a test on specimen of total weight 13 kg the measured values of iron loss at given value of peak flux density were 17.2 W at 40 Hz and 28.9 W at 60 Hz. Estimate the value of hysteresis and eddy current losses in W/Kg at 50 Hz for the same value of peak flux density. 5

B. Tech. (CSE) (II Yr.)

Total Pages : 3

Roll No. ....

Course No. : CS-211

M-I/86

Second Year B. Tech. of the Four Year  
Integrated Degree Course  
Examination, 2016-17

(Computer Science Engineering)

SEMESTER-I

DIGITAL LOGIC DESIGN

Time : Three Hours

Maximum Marks : 50

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M-I/86/I/2016-17/80/ZZ/194

P. T. O.



## UNIT-I

1. Convert the following :

(a)  $(0.203125)_{10}$  to Binary

(b)  $(69.27)_{10}$  to BCD

(c)  $-43$  to 2's Complement

(d)  $(101011)_2$  to Gray Code

(e)  $(367)_{10}$  to Excess-3 Code.

2×5=10

2. (a) Compare the characteristics of different logic families. 5

(b) Explain the characteristics of TTL with totem pole output. 5

## UNIT-II

3. (a) State and prove Associative and Distributive theorems. 5

(b) Simplify the Boolean function :

$$F = A'B'C' + B'CD' + AB'C'$$

5

4. (a) Explain the duality theorem with example. 5

(b) Realize the following function by NAND gates only,  $F = B(A + CD) + AC'$ . 5

5

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5. (a) Draw and

(b) Using the minimal function 14, 16,

6. (a) Find the

(b) Draw the decimal

7. (a) Convert the flop

(b) Explain the mac

8. (a) Explain the Rip

(b) Draw the co

M-I/86/I/20

### UNIT-III

5. (a) Draw and explain the working of a half adder. 5
- (b) Using the Quine-McClusky method obtain the minimal sum of the products expression for the function  $F(A,B,C,D,E) = \Sigma(0, 2, 3, 5, 7, 9, 11, 13, 14, 16, 18, 24, 26, 28, 30)$ . 5
6. (a) Find the cubes of 3-bit numbers. 5
- (b) Draw and explain the working of a BCD to decimal decoder. 5

### UNIT-IV

7. (a) Conversion of an S-R Flip-flop to a J-K Flip-flop and T Flip-flop. 5
- (b) Explain the working of Mealy and Moore machines. 5
8. (a) Explain the working of 3-bit Asynchronous (or Ripple) Down-counter. 5
- (b) Draw and explain the working of 4-bit Johnson counter. 5

Tech. (II Yr.)

Total Pages : 4

Roll No. ....

Course No. : CS-213 (CS)

-I/113

Second Year B.Tech of the Four Year Integrated  
Degree Course Examination, 2016-17  
(Computer Science Engineering)

SEMESTER-I

OBJECT ORIENTED PROGRAMMING WITH C++

Time : Three Hours

Maximum Marks : 50

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- (iii) Attempt at least **one** question from each Unit.
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- (v) All questions carry equal marks.

M-I/113/2016-17/90/ZZ/236

P. T. O.

## UNIT-I

1. (a) What are the important features of Object oriented programming language? Explain data encapsulation in detail. 5
- (b) Write a program in C++ to calculate LCM of any two non-zero positive integer numbers. 5
2. (a) Explain the call by value and call by reference parameter passing with suitable example. 5
- (b) What is Inline function? What are the limitations of it? Explain, how it is different from Macro? 5

## UNIT-II

3. (a) What are the differences between constructors and destructors? Explain copy constructors with suitable example. 5
- (b) What is operator overloading? Write a C++ program to overload + operator for addition of two matrix. 5

4. (a) What is the use of 'this' pointer? Why 'new' is better than 'malloc' for dynamic memory allocation? Explain. 5

(b) Write a program to create a linked list of object. Also define the functionality for insertion and deletion of objects in the linked list. 5

### UNIT-III

5. (a) Differentiate the Multiple, Multi-level and Hierarchical inheritance. How does an object of a derived class, access the members of base class? 5

(b) Explain the following with the help of an example:

(i) Friend function

(ii) Static member function. 5

6. Explain Run time polymorphism and its advantages. How is it implemented in C++ ? Also discuss abstract class and its purpose. 10

## UNIT-IV

7. (a) Explain file pointers and multifile programs in C++.
- (b) What is an exception? Explain exceptions with arguments.
8. (a) What is template? Write a template function search () for searching an item in arrays of integer as well as float numbers.
- (b) Write short notes on the following :
- (i) Iostream class
  - (ii) Standard Template library.

Second Year B. Tech. of the Four = Year Integrated  
Degree Course Examination, 2015-16  
(COMPUTER SCIENCE ENGINEERING & INFORMATION TECHNOLOGY)

SEMESTER-I  
ANALOG ELECTRONICS

TIME: THREE HOURS

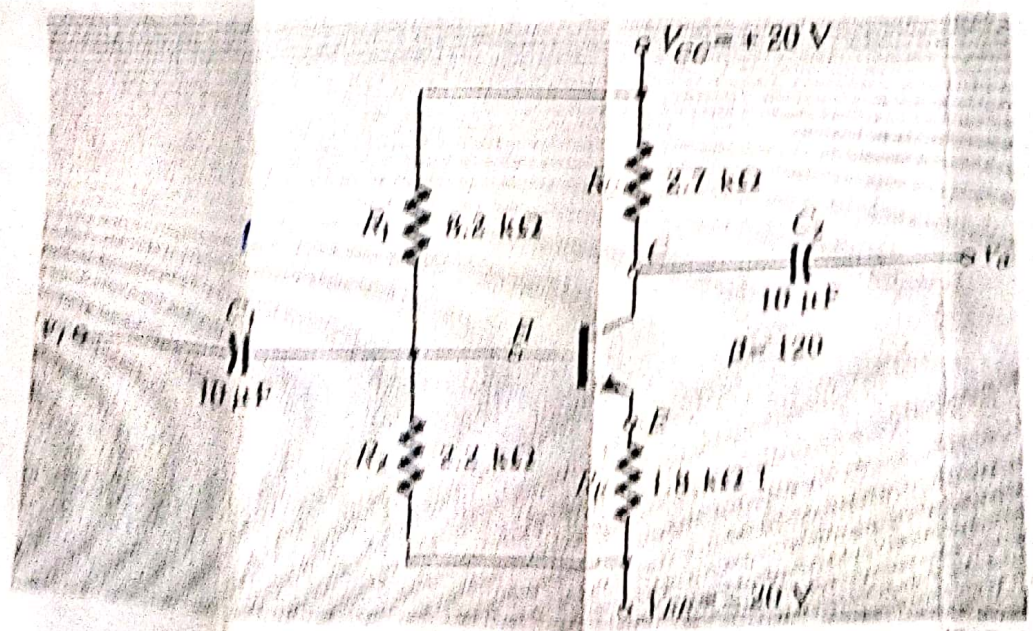
Maximum Marks: 50

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- (i) Attempt any FIVE questions.
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UNIT-I

1. Discuss thermal runaway and define thermal resistance. What is the condition for thermal stability? Explain. (5+5=10)
2. Determine the  $V_C$  (i.e. collector voltage) and  $V_B$  (i.e. base voltage) for the Common Emitter Amplifier with Voltage Divider bias arrangement with dual supply as shown in Figure 1



(5+5=10)

Figure 1

### UNIT-II

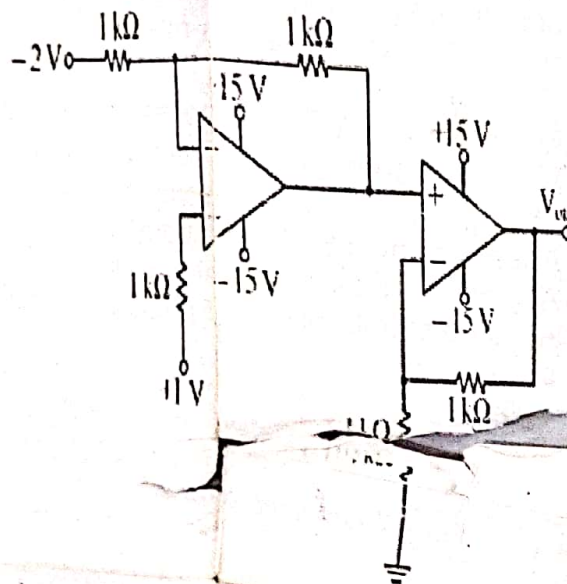
3. If an amplifier with gain of -1000 and feedback of  $\beta = -0.1$ , has a gain change of 20%, due to temperature, calculate the change in gain of feedback amplifier. Derive the expression for Gain Stability in feedback amplifier. (5+5=10)
4. Derive the expression of  $R_{of}$  and  $R_{if}$  for Current Shunt Feedback Amplifier. (10)

### UNIT-III

5. Show that optimum conversion efficiency possible in class B push pull amplifier is 78.5% & explain the drawback of class B configuration in power amplifier. (10)
6. Explain stagger tuned amplifier with its frequency response curve. (10)

### UNIT-IV

7. In the circuit shown below, find the output voltage? (10)



8. Derive the expressions for output voltage of the following: (any two)

- (a) Differentiator
- (b) Logarithmic Amplifier
- (c) Summer (in Non-Inverting mode)
- (d) Subtractor
- (e) Differential Amplifier

(2\*5=10)



following :  
B. Tech. (E & C) (II Yr.)

Total Pages : 6

Roll No. ....

Course No. : CS-213 (EC)

M-I/17

Second Year B. Tech. of the Four Year Integrated  
Degree Course Examination, 2016-17

(ELECTRONICS & COMMUNICATION  
ENGINEERING)

SEMESTER-I

OBJECT ORIENTED PROGRAMMING WITH C++

Time : Three Hours.

Maximum Marks : 50

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M-I/17/I/2016-17/80/ZZ/126

P. T. O.

## UNIT-I

1. (a) What is Object Oriented Programming ? How is it different from the Procedure Oriented Programming ?

(b) Write a Program to convert Decimal number into Binary number.

2. (a) How does a class enforce encapsulation, data hiding and abstraction ?

(b) Write down the output of the following program with explanation :

(i) `#include<iostream.h>`

`int a=10;`

`void main()`

`{`

`int a=20;`

`{`

`int a=30;`

`cout<<a<<"\n"<<::a;`

`}`

`}`

```
(ii) #include<iostream.h>
```

```
void main()
```

```
{
```

```
int i=0,j=20;
```

```
j=(i,j?(++i,j++)?++j:j);
```

```
cout<<i<<end | <<j;
```

```
}
```

```
(iii) #include<iostream.h>
```

```
void main()
```

```
{
```

```
int i=5,j=0,k;
```

```
k=++i | |j++&&++i;
```

```
cout<<i<<j<<k;
```

```
}
```

P. T. O.

## UNIT-II

3. (a) Explain the following with suitable example
- (i) Copy Constructor.
  - (ii) Constructor with Parameters.
- (b) Using Class, write a program to perform the addition, subtraction and multiplication of two matrices.
4. (a) Explain the following with suitable example :
- (i) Operator Overloading.
  - (ii) Function Overloading.
- (b) What is Pointer ? Write down the difference between call by reference and call by address.

### UNIT-III

5. (a) Give the relationship between Public, Private and Protected inheritance. What are the advantage and disadvantage of Inheritance? 5
- (b) What is Virtual function? Explain with suitable diagram. 5
6. (a) Write a C++ Program to add and multiply two complex numbers using friend function. 5
- (b) Explain the following with suitable example :
- (i) Overriding Member Function
  - (ii) Static Function.

### UNIT-IV

7. (a) What are Nested Type Class templates? Mention the advantage of using Nested Type Class Templates. 5

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5

P. T. O.

- (b) What are input and output Streams ? Explain the steps involved in Using a file in C++ Program.
8. (a) What is exception handling ? How it is better than defining macros in the Program ?
- (b) Write a Program that illustrates rethrowing an exception.