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Reg. No. : .....

Name : .....

**First Semester B.C.A. Degree Examination, January 2016**  
**(Career Related FDP Under CBCSS)**  
**Group 2(b) : Computer Applications**  
**CP 1132 : DIGITAL ELECTRONICS**  
**(2013 Admission)**

Time : 3 Hours

Total Marks : 80

**PART – A**

Answer **all** questions. **Each** question carries **1** mark.

**(10×1=10 Marks)**

1. Write down two examples of two active electronic components.
2. Indicate any two specifications of a capacitor.
3. Name any material used for making LED.
4. Draw the symbol of a PNP transistor and indicate the terminals.
5. Define the peak inverse voltage of a rectifier.
6. What is the Binary equivalent of decimal number 10.21 ?
7. What is the 2's complement of 10101 ?
8. What is meant by ECL logic ?
9. Define propagation delay of a digital IC.
10. What is a carbon nano tube ?

P.T.O.



## PART – B

Answer **any 8** questions. **Each** question carries **2** marks.

**(8×2=16 Marks)**

11. Explain the constructional details of carbon composition resistors.
12. What are the uses of capacitors in an electronic circuits ?
13. Explain various applications of diodes.
14. What is the function of emitter by-pass capacitor in an RC coupled amplifier circuit ?
15. Write the applications of 555 timer ICs.
16. Convert  $(B3E)_{16}$  to Binary and Decimal.
17. Subtract binary number 1110101 from 10100111.
18. Explain floating point representation of numbers.
19. Prove the Boolean expression  $A(A\bar{A} + B) = AB$ .
20. What are the applications of flip-flops ?
21. What are the performance parameters of digital logic families ?
22. Draw the setup to make a full adder using half adders.

## PART – C

Answer **any 6** questions. **Each** question carries **4** marks.

**(6×4=24 Marks)**

23. Describe the working of LED with the help of figures.
24. Explain the working of a full wave rectifier.
25. Explain the reverse break down mechanisms in a diode.
26. Explain how the bistable multivibrator is working as a frequency divider.
27. Explain the BCD and ASCII number systems with the help of examples.
28. Draw the OR, AND, XOR and XNOR gates in Venn diagram.



29. Express the Boolean function  $F = A + B'C$  as a sum of minterms.
30. Compare TTL, CMOS and ECL digital logic families.
31. Explain the advantages and disadvantages of nano technology.

**PART – D**

Answer **any 2** questions. **Each** question carries **15** marks.

**(2×15=30 Marks)**

32. With the help of neat schematics explain the input and output characteristics of Transistor in Common Emitter configurations. Write down the expressions for  $R_i$ ,  $R_o$  and  $h_{FE}$ .
  33. Write down the algorithm for BCD Addition. Find the sum and difference of numbers 74998 and 38976 by BCD addition and subtraction respectively. Show the steps clearly.
  34. Realize AND, OR, NOT and XOR gate using NAND gate only. Draw the truth table for each gate also.
  35. With the help of neat schematics explain the working of a key board encoder.
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**First Semester B.C.A. Degree Examination, January 2016**  
**Career Related FDP Under CBCSS**  
**Group – 2 (b) : COMPUTER APPLICATIONS**  
**CP – 1141 : Programming in C**  
**(2013 Admn.)**

Time : 3 Hours

Max. Marks : 80

SECTION – A

Answer **all** questions. **Each** question carries 1 mark.

1. Describe the flowchart symbols.
2. State the structure of a C program.
3. Define variable.
4. What is enumerated data type ?
5. Describe how a string is stored in an array.
6. What is the use of fprintf() ?
7. What is an automatic storage class variable ?
8. What is the use of strcmp function ?
9. What are global variables ?
10. What is the use of dynamic memory allocation ?

SECTION – B

Answer **any 8** questions. **Each** question carries 2 marks.

11. Distinguish between high-level and low-level languages.
12. Distinguish between source code and object code.

P.T.O.



13. Describe the basic data types in C.
14. Describe the relational operators in C.
15. Describe how will you pass and return arguments from functions.
16. Describe the else-if ladder in C.
17. Describe the various graphic functions.
18. Distinguish between break and continue statements.
19. Distinguish between structure tag and structure variable.
20. Describe the differences between unary and binary operators.
21. Write a program to find the sum and average of "n" numbers.
22. Distinguish between strcpy and strcat functions.

### SECTION – C

Answer **any 6** questions. **Each** question carries **4** marks.

23. Define algorithm and flowchart. Explain these with an appropriate example.
24. Explain different language translators. Discuss their merits and demerits.
25. Write short note on various storage classes in C.
26. Describe the concept of pointers. Explain this with a simple program.
27. Describe the various library functions for file handling.
28. Describe the use of header files. Explain any four header files used in C programs.
29. Discuss the syntaxes of new and delete operators with a simple program.
30. Write program to get a matrix A. Then find its transpose  $A^T$ . Also check  $A == A^T$ .
31. Write a program to find the largest and smallest number from a given array without sorting.



SECTION – D

Answer **any 2** questions. **Each** question carries **15** marks.

32. Describe the concept of recursion. Write a program to find the value of "nCr" using recursion.
  33. Explain the use of dynamic memory allocation operators with syntaxes. Write program to swap two numbers using call by reference.
  34. Describe how a string is represented in an array. Explain two dimensional arrays for numbers and strings. Write a program to read a line of string and count the no.of vowels, consonants and numbers.
  35. Explain various loop structures. Write a program to convert a number into equivalent words. (Eg. 123 as One Two Three)
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