UN – 317

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I Semester B.C.A. Degree Examination, November/December 2015
(Repeaters) (Y2K8 Scheme)
BCA 104 : ELECTRONICS
70 – 2011-12 & Onwards
60 – Prior to 2011-12

Time : 3 Hours Max. Marks : 60/70

***Instruction** : Section **D** should be answered by **2011-12** batch Onwards.*

SECTION – A

I. Answer **any ten**, **each** carries **one** mark. **(10×1=10)**

1) State Kirchoff's voltage law.
2) Define Peak value of the wave.
3) Mention the types of energy bands.
4) What is semi conductor ?
5) Convert the decimal number 63 to binary.
6) Expand ASCII. What is its significance ?
7) Write any two postulates of Boolean algebra.
8) Write the symbol and truth table for AND gate.
9) Define minterm with example.
10) Define combinational logic circuit.
11) What is flip-flop ?
12) What is register ?

SECTION – B

II. Answer **any five**, **each** carries **3** marks. **(5×3=15)**

13) State Ohm's law. Calculate the current following across 3 ohms resistor with a voltage of 18V.
14) Explain semiconductor using band theory.

P.T.O.

15) List any three properties of semiconductor.

16) Compare TTL & CMOS IC's.

17) Subtract 45 from 96 using 2's compliment method.

18) Explain half adder circuit with truth table.

19) Explain the working of T-flip flop with logic diagram.

20) Explain the applications of Shift register.

SECTION – C

III. Answer **any five**, **each** carries **7** marks. **(5×7=35)**

21) Explain the forward and reverse bias of PN diode.

22) State and explain Thevenin's theorem.

23) Realize the basic gates using Universal gates.

24) a) State and prove Dc Morgan's theorem.

b) Define SOP & POS.

25) Simplify using K-map.

$F(A,B,C,D) = \sum m(0, 2, 3, 5, 7, 11, 13) + d(1, 7, 10)$.

26) Explain 4-bit adder-subtracter circuit with neat diagram and truth table.

27) Discuss the realization of JK flip-flop with a neat diagram.

28) Explain the different types of shift registers.

SECTION – D

(Only for 2011-12 and onwards)

IV. Answer **any one each** carries **10** marks. **(1×10=10)**

29) a) Explain half wave rectifier with a neat diagram. **5**

b) Explain parity generator and parity checker. **5**

30) a) Explain the working of full adder circuit with the logic diagram. **5**

b) What is RS flip-flop ? Explain clocked RS flip-flop. **5**