SN – 452

18

I Semester B.C.A. Degree Examination, November/December 2014
(Y2K8 Scheme)
(F + R)
COMPUTER SCIENCE
BCA 104 : Digital 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 and Onwards.*

SECTION – A

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

1) What is electric charge ?
2) Define KVL.
3) Write different energy bands.
4) Mention advantages of AC over DC.
5) What is doping ?
6) Write excess-3 code for $1100_{(2)}$.
7) Write any two boolean postulates.
8) What are universal gates ?
9) Expand POS and SOP.
10) Expand TTL.
11) What is parity bit ?
12) What is register ?

SECTION – B

II. Answer **any five** : **(5×3=15)**

13) State and explain maximum power transfer theorem.
14) Explain the energy band theory of semiconductor.
15) What are the rules for binary arithmetic ?

P.T.O.

16) State and prove any three boolean postulates.

17) Explain n type and p type semiconductors.

18) Minimise the following standard SOP using K-Map

$Y = A\overline{B}C + \overline{A}BC + \overline{A}\,\overline{B}\,\overline{C} + \overline{A}\,\overline{B}C + A\overline{B}\,\overline{C}$.

19) Compare TTL with CMOS.

20) Explain the working of D Flip Flop with logic diagram and Truth table.

SECTION – C

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

21) State and explain superposition theorem. **7**

22) Realise basic gates using universal gates with neat diagram. **7**

23) a) Simply using K-Map F(A, B, C) = m (0, 2, 3, 5, 7). **4**

b) Explain XNOR gate. **3**

24) Explain BCA adder with neat circuit diagram and suitable example. **7**

25) Explain how to eliminate racing condition. **7**

26) Discuss the realisation of JK Flip Flop with timing diagram. **7**

27) What are registers ? Explain different types of shift registers. **7**

28) What are semiconductors ? Explain its different types. **7**

SECTION – D

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

29) a) Explain 8-bit decoder with diagram. **6**

b) What is error correction and error detection ? **4**

30) Write a short note on : **(2+4+4)**

a) Min. terms and max. terms

b) RS Flip Flop

c) 4-bit shift register.
