

DISTANCE EDUCATION
B.C.A. DEGREE EXAMINATION, DECEMBER 2011.
ELECTRONIC DEVICES AND DIGITAL CIRCUITS
(2003 onwards)

Time : Three hours

Maximum : 100 marks

Answer any FIVE questions
All questions carry equal marks.

(5 × 20 = 100)

1. (a) Explain the Ex-3 code, gray code with suitable example. (10)
- (b) Convert the following :
 - (i) $(110111)_2 \rightarrow (?)_{10}$
 - (ii) $(110111)_2 \rightarrow (?)_8$
 - (iii) $(423)_{10} \rightarrow (?)_{16}$
 - (iv) $(423)_{10} \rightarrow (?)_2$ (10)
2. (a) Explain ASCII and BCD codes with suitable example. (10)
- (b)
 - (i) Add $(1011)_2$ with $(1101)_2$
 - (ii) Subtract $29-10$ using 2's complement.
 - (iii) Write $(-12)_{10}$ into signed binary number
 - (iv) Subtract $(0110)_2$ from $(1011)_2$. (10)
3. (a) Explain how the transistor acts as a switch. (10)
- (b) Draw the logic symbol for AND, X-OR, NAND and explain with truth table. (10)
4. (a) State and prove the De Morgans theorems. (10)
- (b)
 - (i) Reduce the expression
 $AB + \overline{AC} + \overline{AB}C(AB + C)$ using Boolean algebra. (5)
 - (ii) Draw the logic circuit for $Y = \overline{A}.B + A.\overline{B}$. (5)
5. (a) Using logic gates draw the full adder circuit and explain its function with truth table. (10)
- (b) Draw the three variable Minterm Karnaugh map and explain it? (10)
6. (a) Explain the function of J-K flip flop with truth table. (10)
- (b) Explain the function of ring counter. (10)
7. (a) Explain the VI characteristics of a pn junction diode with suitable diagram. (10)
- (b) With a neat diagram explain the working function of SCR. (10)
8. (a) With a neat block diagram explain the function of simple 4 bit shift register? (10)
- (b) Explain in detail about the working function of UJT. (10)