

B.E. Electrical (Electronics & Power) Engineering Sem-IV (MODEL CURRICULUM)
SE202 : Digital Electronics

P. Pages : 2

Time : Three Hours



GUG/W/22/13804

Max. Marks : 80

- Notes :
1. All questions carry as indicated marks.
 2. Due credit will be given to neatness and adequate dimensions.
 3. Assume suitable data wherever necessary.
 4. Illustrate your answers wherever necessary with the help of neat sketches.

1. a) Subtract 101010 from 110111 using 2's complement method. 2
b) Convert $(0.513)_{10}$ to octal. 2
c) Using 10's complement, subtract 72532-3250. 4
d) State any four Boolean postulates. 4
e) Explain the basic logic gates with truth tables. 4

OR

2. a) Find the 1's complement of the following numbers. 2
i) $(101011)_2$ ii) $(111011)_2$
b) Write the gray code for binary number 11010101. 4
c) Explain the working of an Ex-OR gate using truth table. 4
d) Convert $(110101.100)_2$ into decimal. Octal and hexadecimal numbers. 6
3. a) Construct a 8:1 MUX using 2:1 MUX only. 4
b) Minimize $ABC + A'BC + AB'C + ABC'$ using Karnaugh map. 4
c) Draw & explain the half adder using Nand Gates. 4
d) Express the Boolean function $F = XY + X'Z$ in a product of maxterm form. 4

OR

4. a) Draw and explain 8:1 MUX. What are the different application of MUX. 8
b) Draw full-Subtractor circuit using basic gates and explain its operation with truth table. 8
5. a) Explain asynchronous reset and clear in Flip Flop. 4
b) Explain the race around condition in Flip Flop. 4
c) Draw and explain the working of 4-bit ring counter. 8

OR

6. a) Draw and explain the working of asynchronous 3 bit Binary counter. 8
- b) Explain master slave JK flip-flop with necessary diagrams and truth table. 8
7. a) Write short note on 3 bit R-2R ladder DAC. 8
- b) Explain Dual slope A/D converter. 8

OR

8. Write a note on 16
- i) Sample and hold circuit.
- ii) Parallel comparator A/D converter.
- iii) Successive approximation A/D converter.
- iv) Quantization.
9. a) Explain the classification and characteristics of memories in brief. 6
- b) Draw and explain basic structure of FPGA. How FPGA differ from CPLD. 10

OR

10. a) Write short note on PLA and PAL. 8
- b) Write a difference between RAM and ROM. 8
