

B.Sc. (Information Technology)-I (CBCS Pattern) First Semester
UBITT105.1 - Elective-I : Paper - V : Digital Electronics

P. Pages : 2

GUG/W/18/10915

Time : Three Hours



Max. Marks : 80

- Notes :
1. All questions are compulsory and carry equal marks.
 2. Draw well labelled diagram wherever necessary.
 3. Avoid vague answers and write specific answer to related questions.

1. Either

- | | | |
|---|--------------------------|----------|
| a) Explain following code
i) BCD
iii) Parity | ii) Excess 3
iv) Gray | 8 |
| b) Convert the following numbers to decimal.
i) $(110110)_2$
iii) $(2A3B)_{16}$ | | 8 |
| ii) $(2573)_6$
iv) $(1234)_8$ | | |

OR

- | | |
|--|----------|
| c) What is number system? Explain Hexadecimal number system with example. | 8 |
| d) Explain the positive and negative data represent of a 8-bit binary number Represent the decimal number to data representation.
i) $(+27)_{10}$ | 8 |
| ii) $(-17)_{10}$ | |

2. Either

- | | | |
|--|----------|----------|
| a) Explain following logic Gates with symbolic Representation and truth table.
i) Ex-OR | ii) NAND | 8 |
| b) What is 9's complement ? Explain the decimal subtraction using 9's complement with example. | | 8 |

OR

- | | | |
|--|--------------------|----------|
| c) Explain following Logic Gates with symbolic Representation and truth table:-
i) NOT
iii) OR | ii) AND
iv) NOR | 8 |
| d) Explain Binary subtraction with example. | | 8 |

3. Either

- | | | |
|---|----------|----------|
| a) What is half and full subtractor? Write its Boolean equation and truth table. Also draw their logic diagram. | 8 | |
| b) Explain Law and identities of Boolean Algebra. | | 8 |

OR

- c) Explain following in detail 8
i) Multiplexer ii) Full Adder.
d) What do you mean by K-Map? Explain K-Map with 2 variables. 8

4. Either

- a) Explain following. 8
i) RSFF ii) JKRSFF
b) Explain construction and working of synchronous counter. 8

OR

- c) Discuss the working of JKMSFF. 8
d) What is shift Register? Explain its types. 8

5. Solve all the questions.

- a) Write a short note on EBCDIC. 4
b) Explain Binary number system with example. 4
c) Write a note on Decoder and Encoder. 4
d) Explain Ring counter in brief. 4
