Bachelor of Computer Application (BCA-I) (CBCS) First Semester CBCS

UBCAT105.1-Elective-I : Paper - V : Digital Electronics

P. Pages : 2 **GUG/W/18/11747**

Time : Three Hours * 3 8 3 9 * Max. Marks : 80

Notes : 1. All questions are compulsory and carry equal marks.
2. Draw neat and labelled diagrams wherever necessary.
3. Avoid vague answers.

1. Either

a) Write a brief note on. **8**
i) Excess 3 code ii) Parity code
iii) Gray code

b) What is Decimal Number System? Convert decimal to binary equivalent number with Example. **8**
Convert the following.
i) $(85)_{10} = (\quad)_2$ ii) $(26)_{10} + (\quad)_2$

OR

c) What is BCD code? Why BCD code is called weighted code, Explain with example. also state its advantages and disadvantages. **8**

d) Write in detail about real number representation. **8**

2. Either

a) Give the truth table for. **8**
i) NAND ii) NOR
iii) NOT iv) AND

b) Explain 2's complement in brief with suitable example. Also write steps and example for binary subtraction using 2's complement. **8**

OR

c) Explain Binary Addition and subtraction in brief with suitable example. **8**

d) Why NOR and NAND gates are called as universal gates? Explain in detail. **8**

3. Either

a) What is Boolean algebra? Explain the laws and Identities of Boolean algebra. **8**

b) What is K-Map? Explain K-map for 2,3,4 variables in brief. **8**

OR

c) Write a brief note on. **8**
i) Multiplexer.
ii) Demultiplexer.

d) Explain Demorgan's Theorem in brief . **8**

4. Either

a) Explain in detail the construction and working of RSFF. Give its truth table and timing diagram. **8**

b) Write a brief note on. **8**
i) Asynchronous counter.
ii) Synchronous counter.

OR

c) Explain the Johnson counter with its timing diagram in brief. **8**

d) Explain DFF, TFF and JKFF in detail with its timing diagram. **8**

5. Attempt all the questions.

a) Explain positive and Negative Number representation in detail with suitable example. **4**

b) Write a brief note on 9's complement. **4**

c) Explain POS and SOP logic expressions using K-map. **4**

d) What is Ring counter? Explain with its timing diagram. **4**

****