B.C.A.- I (CBCS Pattern) Semester - I

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

P. Pages : 1 **GUG/S/23/11747**

Time : Three Hours * 1 9 3 7 * 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 and write answers relevant and specific to questions only.

Either:

1. a) Write down steps to convert binary number system to decimal systems. Also convert following binary number into decimal. **8**

i) $(1011101)_2 = (?)_{10}$ ii) $(1011011)_2 = (?)_{10}$

b) Explain in detail about BCD code? Explain why BCD code is called as weighted code. **8**

OR

c) What is Binary code? Explain ASCII and EBCDIC codes. **8**

d) What is Gray code? State any four advantages over Excess-3 code. **8**

Either:

2. a) What are EX-OR and EX-NOR gates? Draw its logic symbol and truth table. Express their Boolean equation. **8**

b) Explain following with truth table **8**

i) NOT Gate ii) AND Gate

OR

c) Explain binary subtraction using 1's compliment with examples. **8**

d) What is Logic gate? Explain the construction of universal gate by using basic gates. **8**

Either:

3. a) What is Multiplexer? Explain Also explain its advantages and disadvantages. **8**

b) State and prove De-Morgan's theorem for three variables. **8**

OR

c) What is Encoder? Explain. **8**

d) State Boolean laws for AND and OR operation **8**

Either:

4. a) What is Edge-Triggered Flip-Flop? Explain positive and negative edge triggered Flip-Flop. **8**

b) Explain the construction and working of Latch RSFF. **8**

OR

c) What is register? State any two uses of shift register **8**

d) Differentiate between Ring counter and Johnson counter. **8**

5. Attempt all the questions.

a) Explain parity code with examples. **4**

b) What is 9's complement? Explain in short with suitable examples. **4**

c) What is decoder? Explain **4**

d) Differentiate between synchronous and asynchronous counter. **4**

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