

B.C.A.- I (NEP) Semester-I
CC102 - Paper-II - Basic of Computer Architecture

P. Pages : 2

Time : Three Hours



GUG/S/25/16188

Max. Marks : 60

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

Either:

1. a) What is number system? Explain Positional and Non-positional number system with its Valid and invalid examples. 6
- b) Write the steps to Convert Decimal to Hexadecimal conversion with suitable example. 6

OR

- c) Solve the following. 6
 - i) $(14)_{10} = (?)_2$
 - ii) $(72)_{16} = (?)_8$
- d) What is mean by binary codes? Explain weighted binary code in detail. 6

Either:

2. a) Give the symbolic representation & truth table of following. 6
 - i) Nand gate.
 - ii) NOR gate.
 - iii) Ex-NOR gate.
- b) Solve decimal subtraction using 10^S compliment form 6
 - i) $7 - 4$
 - ii) $17 - 36$
 - iii) $12 - 27$

OR

- c) Do the following binary operations. 6
 - i) $(10111.10)_2 + (1111.01)_2$
 - ii) $(1010)_2 - (0110)_2$
- d) Explain binary addition and subtraction with suitable example. 6

Either:

3. a) What is K-map? Explain K-map for 4 variable with suitable example. 6
- b) State and prove Boolean law's. 6

OR

- c) Show that: 6
- i) $(A+B) \cdot (A+\bar{B}) = A$
- ii) $A + (\bar{A} \cdot B) + BC = A + B$
- d) What is mean by multiplexer? Explain 8:1 MUX in detail. 6

Either:

4. a) Describe the working of 3-bit ripple counter with timing diagram. 6
- b) Explain the following term. 6
- i) D - Flip flops
- ii) RS - Flip flops.

OR

- c) Discuss in detail about PISO shift register. 6
- d) Explain the working of JKMS flip flops. 6

5. Attempt all the questions below.

- a) Explain Alphanumeric code in short. 3
- b) Realize the NOR gate by using Nand gate. 3
- c) State and prove DeMorgan's theorem. 3
- d) Give the difference between synchronous and Asynchronous counter. 3
