VINAYAKA MISSIONS SIKKIM UNIVERSITY

(Estd. by Sikkim Legislative Act vide VMSUAct No. 11 of 2008)

DIRECTORATE OF DISTANCE EDUCATION

NH 10-A, Tadong, East Sikkim-737102

Programme: Master of Computer Application   **Session:** 2015-16   **Full Marks:** 10
Course/Subject Name: Mathematical Foundation of Computer Science   **Course/Subject Code:** CS 4206
Assignment No: 1   **Last Date of Submission:** 31st March 2016

SECTION –A

Answer the following questions.   **[0.5x10=5]**

1.   For an AND gate , for two given inputs, A & B , the output will be,

(i) .A.B   (ii) A/B (iii). A+B   (iv) None of the above

2.   For an OR gate , for two given inputs , A & B , the output will be ,

(i) A.B   (ii) A/B   (iii) A+B   (iv)None of the above.

3.   For a NAND gate, for two given inputs , A &B , the output will be,

(i).ABAR   (ii) BBAR   (iii) AB   (iv) ABBAR.

4.   For a NOR gate , for two given inputs , A &B , the output will be,

(i) A+B   (ii) A.B   (iii) A+B BAR (iv) A/B.

5. The value of $^{10}C_4$ is,

(i). 210   (ii) 256   (iii) 420   (iv) None of the above.

6. The value of $^{10}P_4$ is,

(i) 420   (ii) 256   (iii) 210   (iv) None of the above.

7. If, for r=1, the result is $(1)^2$, for r=2 , the result is $(2)^2$, then , according to mathematical induction, for r=k , the result will be,

(i) k^2 (ii) K+1   (iii) $\sum 1^2+2^2+3^2+\dots k^2$ (iv) None of the above.

8. The numerical value of Permutation & Combination, if denoted by P & C respectively, then , always,

(i) PC   (ii) P=C   (iii) P (iv) None of the above.

9. The mathematical expression for ^nC_r is,

(i)   (ii)   (iii)   (iv) None of the above

10. The mathematical expression for ^nP_r is,

(i)   (ii)   (iii)   (iv) None of the above.

SECTION –B

Answer any <u>Five questions</u> from the following within 50 words   **[1x5=5]**

1. Write down the truth table for AND gate.
2. Write down the truth table for NOR gate.
3. NAND gate is composed of how many gates & what are they?
4. Write down the truth table for NAND gate.
5. NOR gate is composed of how many gates & what are they?
6. Define Permutation.
7. Define Combination.