

Sant Gadge Baba Amravati University, Amravati Summer 2020 Exam

H.V.P.Mandal's College of Engineering & Technology Amravati

Course: Computer Science & Engineering

BE Four Year Fifth Semester (Computer Science & Engineering) Summer 2020 Exam  
5KS04 Switching Theory and Logic Design

**Assignment ONLY FOR BACKLOG STUDENTS**

Marks: 20

Note:

1. Solve any Two Questions.
2. Each Question carries 10 marks.

**Question No.1 (10 marks)**

a. What is Identifiers in VHDL? Explain.	2M
b. How to declare entity in VHDL?	2M
c. What is a standard SOP form?	1M
d. What is a parallel adder?	2M
e. Explain the operation of JK flip-flop.	2M
f. What is the Moore machine?	1M

**Question No.2 (10 marks)**

a. Explain the scalar type in VHDL.	2M
b. Write a VHDL code for AND gate using behavioral style of modeling.	2M
c. What is Quine-McClusky method?	1M
d. Which logic device is called as a distributor? 1) Multiplexer 2) demultiplexer 3) encoder 4) decoder	1M
e. What are the applications of flip-flops?	2M
f. Compare the Moore and Mealy machines.	2M

**Question No.3 (10 marks)**

a. Explain the standard logic (std_logic) in VHDL.	1M
b. Explain entity installation and port mapping in VHDL.	1M
c. Reduce the following expression using k-map. $\sum m(5,6,7,9,10,11,13,14,15)$	2M

- |  |    |
|--|----|
| d. With the help of a logic diagram explain a parallel adder/subtractor using 2's complement system. | 2M |
| e. Distinguish between combinational and sequential sequence switching circuits.                     | 2M |
| f. What are the capabilities and limitations of finite state machines?                               | 2M |

**Question No.4 (10 marks)**

- |   |    |
|---|----|
| a. Explain how data will be manipulated using sequential statements with one example. | 2M |
| b. Write short note on architectural bodies.  | 2M |
| c. What is k-map? What are its advantages and disadvantages?                          | 2M |
| d. Distinguish between parallel adder and serial adder.                               | 2M |
| e. List the different types of latches and flip-flops.                                | 1M |
| f. What do you mean by terminal state?  | 1M |