ELIZADE UNIVERSITY

ELIZADE UNIVERSITY, ILARA-MOKIN, ONDO STATE

FACULTY OF ENGINEERING

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING

FIRST SEMESTER EXAMINATION, 2017/2018 ACADEMIC SESSION

COURSE TITLE: ARTIFICIAL NEURAL NETWORK

COURSE CODE: ECT 413

EXAMINATION DATE: 21st MARCH 2018

COURSE LECTURER: Prof. E. O. Omidiora

HOD's SIGNATURE

TIME ALLOWED: 2 HOURS

INSTRUCTIONS:

1. ANSWER 5 QUESTIONS IN ALL. ANSWER ANY 3 QUESTIONS IN SECTION A AND ANY 2 QUESTIONS IN SECTION B
2. SEVERE PENALTIES APPLY FOR MISCONDUCT, CHEATING, POSSESSION OF UNAUTHORIZED MATERIALS DURING EXAM.
3. YOU ARE **NOT** ALLOWED TO BORROW ANY MATERIAL DURING THE EXAMINATION.

SECTION A (Answer any 3 questions)

1(a) What is a Neuron?
(b) With the aid of a well labeled diagram, describe a biological neuron.

2(a) Highlight the development of Artificial Neural Networks between 1950 and 1980.
(b) Differentiate between a biological neuron and an artificial neural network.

3(a) What is a Feedforward Network?
(b) Explain the similarities and differences between single layer feedforward network and multilayer feedforward network.

4(a) How is the *winner-takes-all* strategy realized in competitive learning rule?
(b) Highlight five important characteristics of Hamming Network.

SECTION B (Answer any 2 questions)

5(a) Define Learning.
(b) Why is learning important in the working process of artificial neural networks?
(c) Write short note on any two of the following: (i) Supervised Learning;
(ii) Unsupervised Learning; and, (iii) Reinforcement Learning.

6(a) Describe the basic concept of Learning Vector Quantization.
(b) Explain, in detail, the architecture of Learning Vector Quantization.
(c) Implement a flowchart to explain the procedure that is employed in training Learning Vector Quantization.

7(a) What do you understand by Adaptive Resonance Theory?
(b) Discuss the phases involved in the operations of Adaptive Resonance Theory classification.
(c) Explain the architecture of the input unit exhibited by Adaptive Resonance Theory.