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| Reg.No.: | | | | | | | |
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VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN
 [AUTONOMOUS INSTITUTION AFFILIATED TO ANNA UNIVERSITY, CHENNAI]
 Elayampalayam – 637 205, Tiruchengode, Namakkal Dt., Tamil Nadu.

Question Paper Code: 7017

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – MAY / JUNE 2024

Seventh Semester

Electronics and Communication Engineering

U19ECE30 – NEURAL NETWORKS AND ITS APPLICATIONS

(Regulation 2019)

Time: Three Hours

Maximum: 100 Marks

Answer ALL the questions

| | | | |
|--------------------------|--------------------|----------------|-----------------|
| Knowledge Levels (KL) | K1 – Remembering | K3 – Applying | K5 - Evaluating |
| | K2 – Understanding | K4 – Analyzing | K6 - Creating |

PART – A

(10 x 2 = 20 Marks)

| Q.No. | Questions | Marks | KL | CO |
|-------|--|-------|----|-----|
| 1. | Recall Muculloch-Pitts theory. | 2 | K1 | CO1 |
| 2. | Relate biases and thresholds. | 2 | K2 | CO1 |
| 3. | Define Perception. | 2 | K1 | CO2 |
| 4. | What is generalized delta rule? | 2 | K1 | CO2 |
| 5. | Name the cluster is formed in Kohonen self organizing map. | 2 | K1 | CO3 |
| 6. | List the steps involved in obtaining the training patterns. | 2 | K1 | CO3 |
| 7. | Outline the steps involved in pre-training. | 2 | K2 | CO4 |
| 8. | What is the different types of pattern recognition? | 2 | K1 | CO4 |
| 9. | Show how Bayesian estimation is used for determining an unknown parameter. | 2 | K2 | CO5 |
| 10. | Mention the need of non parametric procedures. | 2 | K2 | CO5 |

PART – B

(5 x 13 = 65 Marks)

| Q.No. | Questions | Marks | KL | CO |
|--------|---|-------|----|-----|
| 11. a) | Explain the concept of neurophysiology and biological neural network. | 13 | K2 | CO1 |
| | (OR) | | | |
| b) | Explain Adaline network and its applications. | 13 | K2 | CO1 |
| 12. a) | Summarize the steps used in simulation of BPN. | 13 | K2 | CO2 |
| | (OR) | | | |
| b) | Explain the two types of Hopfield memory. | 13 | K2 | CO2 |
| 13. a) | Explain the architecture of Kohonen self organizing map and how character recognition is done by using self organizing map. | 13 | K2 | CO3 |
| | (OR) | | | |
| b) | Explain the algorithm of learning vector quantization with an example. | 13 | K2 | CO3 |
| 14. a) | Build the training and learning in pattern recognition. | 13 | K3 | CO4 |
| | (OR) | | | |
| b) | Explain hierarchical clustering and partitional clustering in detail. | 13 | K2 | CO4 |
| 15. a) | Explain bayesian classifier, discriminate functions and decision surfaces. | 13 | K2 | CO5 |
| | (OR) | | | |
| b) | Illustrate density estimation by using non parametric techniques. | 13 | K2 | CO5 |

PART – C

(1 x 15 = 15Marks)

| Q.No. | Questions | Marks | KL | CO |
|--------|---|-------|----|-----|
| 16. a) | Explain perceptron learning rule, delta learning rule, hebbian learning rule and widrow-hoft learning rule in detail. | 15 | K2 | CO1 |
| | (OR) | | | |
| b) | Explain bidirectional associative memories in detail. | 15 | K2 | CO2 |