M.Sc. 3rd Semester Examination, 2022

COMPUTER SCIENCE

(*Machine Learning*)

[Elective]

PAPER — COS-303

Full Marks : 50

Time : 2 hours

The figures in the right hand margin indicate marks

Candidates are required to give their answers in their own words as far as practicable

GROUP — A

Answer any **four** questions :　　　　2×4

1. What is reinforcement learning ?

2. Define sensitivity and specificity.

(*Turn Over*)

3. Define Bias.

4. What is the function of sklearn library in python ?

5. What do you mean by underfitting ?

6. What is self-supervised learning ?

GROUP – B

Answer any **four** questions : 4×4

7. What is neural network ? How does it function ? $2 + 3$

8. Differentiate between supervised and unsupervised learning. What is co-variance matrix ? $4 + 1$

9. What is the difference between training and learning ? Explain the linear regression method. $2 + 3$

10. What is activation function ? What do you mean by training set, test set and validation set ? $2 + 3$

(Continued)

11. What is bagging and boosting ? What is entropy ? 3 + 2

12. Write a short note on PCA. 5

GROUP – C

Answer any **two** questions : 8 × 2

13. Explain the logistic regression algorithm. What is the advantage and disadvantage of this algorithm ? What are some popular applications of this algorithm ? 4 + 2 + 2

14. How does the k-Nearest Neighbor (k-NN) classfier work ? What is deep learning ? Define confusion matrix. 4 + 2 + 2

15. What do you mean by ANN ? Explain the biological neuron model and relate it to the ANN. 2 + (3 + 3)

(*Turn Over*)

16. What is scaling ? Explain the L2 Normalization technique. Describe the *k*-means clustering technique.   2 + 2 + 4

[*Internal Assessment* — 10 Marks]

———————