R7341	Sub. Code
	546301

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2022

Third Semester

Information Technology

INTERNET OF THINGS

(CBCS – 2019 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. List out the features of IoT
2. Justify the reason for using M2M and IoT
3. Define IETF
4. Name the features of IoT reference model
5. What protocols does IoT use?
6. Define CoAP
7. Analyze the features of Raspberry PI.
8. What is the purpose of actuators in IoT?
9. List the applications of IoT
10. Justify amazon web services

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Differentiate between physical and logical design of IoT

Or

(b) Discuss the limitations of SNMP

12. (a) Differentiate sensor observation and planning services.

Or

(b) Illustrate the different types of communication model.

13. (a) Explain about M2M and WSN protocols.

Or

(b) Write a detailed note on BAC Net protocol.

14. (a) What are the interfaces in Raspberry? Explain.

Or

(b) Justify the significant of IoT systems.

15. (a) Write any two applications of IoT.

Or

(b) Discuss about using Hadoop, MapReduce for Batch Data Analytics

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Demonstrate the components of IoT with neat sketch.

17. Write a detailed note on IETF architecture for IoT.

18. Explain in detail about protocol standardization of IoT.

19. Discuss in detail about Arduino with neat sketch.

20. How to automate commercial building using IoT? Explain.

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R7342	Sub. Code
	546302

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2022

Third Semester

Information Technology

BIG DATA ANALYTICS AND R PROGRAMMING

(CBCS – 2019 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A $(10 \times 2 = 20)$

Answer **all** the questions.

1. Differentiate between Big data and Data Science.

2. Define Data Repositories.

3. What is R Programming?

4. What is ANOVA?

5. Define Clustering.

6. What is Regression?

7. What is Decision Tree.

8. What are the steps in Text analysis?

9. List out Big Data tools.

10. Differentiate between Hbase and Hive.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Describe the Big Data Architecture.

Or

(b) Write short notes on

(i) Data Discovery

(ii) Data Preparation

12. (a) Discuss about Single Variable and Multiple Variable Visualization.

Or

(b) Describe the wilcoxon rank sum Test.

13. (a) Discuss about density based and Grid based Clustering in detail.

Or

(b) Explain in detail about Association rules.

14. (a) Discuss about Naïve Bayes Classifier.

Or

(b) Differentiate between ARMA and ARIMA model.

15. (a) Describe the aggregate data models.

Or

(b) Write short Notes on

(i) Join in SQL

(ii) Group in SQL

(iii) Set Operation in SQL.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain in detail about the Data Analytics life cycle.

17. How to Import and Export Data in R? Explain with an example.

18. Differentiate between Linear Regression and Logistic Regression.

19. Explain in detail about Text analysis.

20. Briefly explain in detail about MapReduce and Hadoop concept.

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R7343	Sub. Code
	546303

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2022

Third Semester

Information Technology

MACHINE LEARNING

(CBCS – 2019 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. List out few examples of Machine learning.

2. What do you mean by feature selection?

3. How to develop the linear discriminants?

4. Define Perceptron.

5. What is symbolic decision tree?

6. Define pruning.

7. List out approximation and estimation errors.

8. What is Tradeoff?

9. What is Classifier?

10. What is finite covering?

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Discuss about supervised Learning.

Or

(b) Describe the conditional probability distribution.

12. (a) Discuss about the perceptron learning Algorithm along with an example.

Or

(b) Discuss about single layer Neural Network.

13. (a) Explain entropy function for a class problem.

Or

(b) Describe the C4.5 algorithm with an example.

14. (a) Discuss about inductive bias.

Or

(b) Describe the learning theory concepts.

15. (a) Describe the structural risk minimization.

Or

(b) Explain in detail about Maximum margin classifier with an example.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Briefly explain about Bayes Optimal classifier.

17. Explain in detail about Multi-layer Perceptron.

18. Briefly explain about K- Nearest neighbor algorithm with an suitable example.

19. Explain in detail about Vapnik-Chervonenkis (Vc) Dimensions.

20. Explain about Statistical Model Selection.

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R7344	Sub. Code
	546509

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2022

Third Semester

Information Technology

WIRELESS AD HOC AND SENSOR NETWORKS

(CBCS – 2019 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Outline how node scheduling is done in contention based MAC protocols with scheduling mechanisms.

2. What are the issues in Adhoc Wireless Network?

3. Write any two examples of proactive and reactive protocols.

4. What is QoS?

5. What is energy scavenging?

6. List out all the protocols in Sensor Networks.

7. Define Time Synchronization.

8. Define Localization in Sensor.

9. Define TESLA.

10. What do you mean by key distribution in sensor network?

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Discuss about self configuration and Auto configuration in Adhoc Network.

Or

(b) Differentiate between Adhoc Network and MANET.

12. (a) Describe the Quorums based location service protocol.

Or

(b) Describe the Greedy Packet forwarding.

13. (a) Describe the sensor Network design.

Or

(b) Differentiate between Mobile nodes and Mobile Robots.

14. (a) How will you sense node in sensor network and How to manage it?

Or

(b) Discuss the Uses of Operating System of Sensor Network Programming.

15. (a) Describe the Anti tamper techniques.

Or

(b) Describe the Water Marking Techniques.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain in detail about IEEE 802.11 Architecture.

17. Discuss about DREAM protocols.

18. Define IEEE 802. 15.4 Zigbee and explain it.

19. Explain the Sensor Network simulators.

20. Explain briefly about SPINS.

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