R2856

Sub. Code
551201

M.Sc. DEGREE EXAMINATION, APRIL – 2025

Second Semester

Computer Science

MACHINE LEARNING

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the following objective questions by choosing the correct option.

1. Which of the following is not a supervised machine learning algorithm? (CO1, K2)

   (a) K-means

   (b) Naïve Bayes

   (c) SVM for classification problems

   (d) Decision tree

2. Which algorithm is best suited for a binary classification problem? (CO1, K5)

   (a) K-nearest Neighbors

   (b) Decision Trees

   (c) Random Forest

   (d) Linear Regression

3. Which type of machine learning algorithm falls under the category of "unsupervised learning"? (CO2, K5)

(a) Linear Regression

(b) K-means Clustering

(c) Decision Trees

(d) Random Forest

4. Which one of the following models is a generative model used in machine learning? (CO2, K2)

(a) Support vector machines

(b) Naïve Bayes

(c) Logistic Regression

(d) Linear Regression

5. What is the goal of concept learning? (CO3, K6)

(a) To minimize cross-validation set error

(b) To maximize test set accuracy

(c) To find a hypothesis that is most suitable for training instances

(d) To identify all possible predictors

6. In the list-then-eliminate algorithm, the initial version space contains (CO3, K4)

(a) most specific hypothesis

(b) all hypotheses in H

(c) most accurate hypothesis

(d) most general hypothesis

7. What happens to the version space in the list-then-eliminate algorithm, at each step? (CO4, K6)

(a) Remains the same

(b) Increases

(c) Shrinks

(d) Depends on dataset

8. How is a hypothesis represented in concept learning? (CO4, K5)

(a) Scalar (b) Vector

(c) Polynomial (d) Either scalar or vector

9. What is the basic building block of an Artificial Neural Network? (CO5, K3)

(a) Neuron (b) Activation function

(c) Gradient descent (d) Loss function

10. Genetic algorithm is a _____. (CO5, K5)

(a) Search technique used in computing to find true or approximate solution to optimization and search problem

(b) Sorting technique used in computing to find true or approximate solution to optimization and sort problem

(c) Both (a) and (b)

(d) None of these

Part B (5 × 5 = 25)

Answer **all** the questions not more than 500 words each.

11. (a) Explain perspective and issues in machine learning. (CO1, K5)

Or

(b) Illustrate decision tree learning? (CO1, K4)

12. (a) Explain concept learning. (CO2, K5)

Or

(b) Discuss about Gibbs algorithm. (CO2, K4)

13. (a) Explain about decision tree algorithm. (CO3, K5)

Or

(b) Discuss about Inductive Bias. (CO3, K4)

14. (a) What is biological motivation? Explain it. (CO4, K2)

Or

(b) Explain in detail about Perceptrons. (CO4, K5)

15. (a) Discuss about hypothesis space search. (CO5, K4)

Or

(b) Explain learning sets of foil. (CO5, K5)

Part C (5 × 8 = 40)

Answer **all** the questions not more than 1000 words each.

16. (a) Explain about version spaces and candidate elimination. (CO1, K5)

Or

(b) Discuss about Heuristic space search in detail. (CO1, K4)

17. (a) What is Bayes optimal classifier? Explain it. (CO2, K2)

Or

(b) Explain Bayesian belief network. (CO2, K5)

18. (a) Explain hypothesis state space search in decision tree learning. (CO3, K5)

Or

(b) Discuss about instance based learning. (CO3, K4)

19. (a) Explain about multilayer network. (CO4, K5)

Or

(b) Write the back propagation algorithm. (CO4, K5)

20. (a) Explain parallelizing genetic algorithm. (CO5, K5)

Or

(b) Discuss about sequential covering algorithm. (CO5, K4)

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R2857	Sub. Code
	551202

M.Sc. DEGREE EXAMINATION, APRIL – 2025

Second Semester

Computer Science

COMPILER DESIGN

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the following objective questions by choosing the correct option.

1. Which of the following is a stage of compiler design? (CO1, K2)

   (a) Semantic analysis

   (b) Intermediate code generator

   (c) Code generator

   (d) All of the mentioned

2. What is the use of a symbol table in compiler design? (CO1, K2)

   (a) Finding name's scope

   (b) Type checking

   (c) Keeping all of the names of all entities in one place

   (d) All of the mentioned

3. Which of the following error can a compiler check? (CO2, K2)

(a) Syntax Error

(b) Logical Error

(c) Both Logical and Syntax Error

(d) Compiler cannot check errors

4. Which of the following is known as a compiler for a high-level language that runs on one machine and produces code for a different machine? (CO2, K2)

(a) Cross compiler

(b) Multipass compiler

(c) Optimizing compiler

(d) One pass compiler

5. Which of the following phase of the compiler is Syntax Analysis? (CO3, K2)

(a) Second

(b) Third

(c) First

(d) All of the mentioned

6. What is CFG? (CO3, K2)

(a) Regular Expression

(b) Compiler

(c) Language expression

(d) All of the mentioned

7. Which of the following error can Compiler diagnose? (CO4, K2)

(a) Logical errors only

(b) Grammatical and logical errors

(c) Grammatical errors only

(d) All of the mentioned

8. Characters are grouped into tokens in which of the following phase of the compiler design? (CO4, K1)

(a) Code generator

(b) Lexical analyzer

(c) Parser

(d) Code optimization

9. Which of these is also known as look-head LR parser? (CO5, K2)

(a) SLR

(b) LR

(c) LLR

(d) None of the mentioned

10. An LR-parser can detect a syntactic error as soon as _____. (CO5, K2)

(a) The Parsing starts

(b) It is possible to do so a left-to-right scan of the input

(c) It is possible to do so a right-to-left scan of the input

(d) Parsing ends

Part B (5 × 5 = 25)

Answer **all** the questions not more than 500 words each.

11. (a) Explain structure of compiler design. (CO1, K5)

Or

(b) Explain recognition of tokens. (CO1, K5)

12. (a) Determine about Parse trees in detail. (CO2, K3)

Or

(b) Elaborate explain about LALR parsers. (CO2, K6)

13. (a) What is dependency graphs? Explain it. (CO3, K2)

Or

(b) Write a note on syntax directed translation schemes. (CO3, K5)

14. (a) Discuss about three address code. (CO4, K5)

Or

(b) What is procedure call? Explain it. (CO4, K2)

15. (a) Briefly explain about basic Block and flow graphs. (CO5, K5)

Or

(b) What is Peephole optimization? Explain it.

(CO5, K5)

Part C (5 × 8 = 40)

Answer **all** the questions not more than 1000 words each.

16. (a) Discuss the following : (CO1, K4)

(i) Symbol table

(ii) The role of the lexical analyzer

Or

(b) Discuss about NFA – DFA automation. (CO1, K4)

17. (a) Explain about context free grammars. (CO2, K5)

Or

(b) Discuss about LR Parsers and LALR parsers. (CO2, K4)

18. (a) Discuss about inherited and synthesize data attributes. (CO3, K3)

Or

(b) Discuss about S attributed definitions and L attributed definition. (CO3, K3)

19. (a) Explain the following : (CO4, K5)

(i) Control flow

(ii) Backpatching

(iii) Procedure call

Or

(b) Explain about various code optimization techniques. (CO4, K5)

20. (a) Explain about optimization of basic blocks. (CO5, K5)

Or

(b) Discuss about simple code generator. (CO5, K4)

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R2858	Sub. Code
	551203

M.Sc. DEGREE EXAMINATION, APRIL – 2025

Second Semester

Computer Science

FUNCTIONAL PROGRAMMING USING PYTHON

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the following objective questions by choosing the correct option.

1. _____ languages are specially designed to handle symbolic computation and list processing applications. (CO1, K1)

   (a) XP programming

   (b) Embedded programming

   (c) Functional programming

   (d) None of the above

2. Which of the following are the popular functional programming languages? (CO1, K2)

   (a) Lisp (b) Python

   (c) Erlang (d) All of the above

3. Functional programming languages are categorized into _____ groups. (CO2, K1)

   (a) 1 (b) 2

   (c) 3 (d) 4

4. Which of the following are advantages of Functional Programming? (CO2, K2)

   (a) Bugs-Free Code

   (b) Efficient Parallel Programming

   (c) Efficiency

   (d) All of the above

5. A _____ is similar to function prototype in which number of parameters, data type of parameters and order of appearance should be in similar order. (CO3, K2)

   (a) function prototype (b) function signature

   (c) control function (d) flow function

6. Functions are of ———————— types. (CO3, K1)

   (a) 0 (b) 1

   (c) 2 (d) 3

7. In Call by Value method, the original value ———————— be changed. (CO4, K2)

   (a) can

   (b) cannot

   (c) depends on function

   (d) depends on language

8. Python supports the creation of anonymous functions at runtime, using a construct called ————————. (CO4, K1)

   (a) Lamda (b) Pi

   (c) Anonymous (d) None of the mentioned

9. Which of the following is the use of function in python? (CO5, K2)

   (a) Functions are reusable pieces of programs

   (b) Functions don't provide better modularity for your application

   (c) You can't also create your own functions

   (d) All of the mentioned

10. Which keyword is used for function? (CO5, K2)

(a) Fun (b) Define

(c) Def (d) Function

Part B (5 × 5 = 25)

Answer **all** the questions not more than 500 words each.

11. (a) What is functional programming? Explain it. (CO1, K3)

Or

(b) Write the sorting function with example program. (CO1, K5)

12. (a) Explain about defensive copying. (CO2, K5)

Or

(b) Discuss about converting data to a list (CO2, K5)

13. (a) Explain tail recursion. (CO3, K5)

Or

(b) Write a note on memorization (CO3, K4)

14. (a) Discuss in detail about closure (CO4, K4)

Or

(b) Discuss about anonymous function (CO4, K4)

15. (a) Explain using classes instead of closure (CO5, K5)

Or

(b) Explain advantages of functions (CO5, K5)

Part C (5 × 8 = 40)

Answer **all** the questions, not more than 1000 words each

16. (a) Explain the following (CO1, K5)

(i) Sorting function

(ii) Redefining function

Or

(b) Discuss about functions as parameter (CO1, K4)

17. (a) Explain about mutability in Python and Slices. (CO2, K5).

Or

(b) Illustrate Looping in Python with example program. (CO2, K4)

18. (a) Explain about Factorial and Recursion limit. (CO3, K5)

Or

(b) Discuss about flattening list. (CO3, K4)

19. (a) Write a note on incrementing the element in a list. (CO4, K4)

Or

(b) Explain about using closure in place of Lambda. (CO4, K5)

20. (a) Write a note on closure inspection (CO5, K4)

Or

(b) Explain using classes instead of closure. (CO5, K5)

R2859	Sub. Code
	551204

M.Sc. DEGREE EXAMINATION, APRIL – 2025

Second Semester

Computer Science

WIRELESS SENSOR NETWORKS

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer all the following objective questions by choosing the correct option.

1. What is wireless communication? (CO1, K1)

   (a) Sending data from one location to with the use of physical medium

   (b) Sending data from one location to another without the use of physical medium

   (c) Sending data from one location to another without the use of virtual medium

   (d) None of the mentioned

2. Which of the following is a type of wireless communication? (CO1, K2)

   (a) LAN

   (b) WAN

   (c) PAN

   (d) All of the mentioned

3. Why wireless communication is used? (CO2, K2)

(a) It enables billions of people to connect to the Internet

(b) Lowers the cost of network infrastructure

(c) Makes services more inexpensive

(d) All of the mentioned

4. Space diversity s also known as (CO2, K1)

(a) Frequency diversity

(b) Antenna diversity

(c) Polarization diversity

(d) Time diversity

5. Which two channels are responsible for initiating mobile calls? (CO3, K5)

(a) FCC and RVC

(b) FVC and FCC

(c) FVC and RVC

(d) FCC and RCC

6. Which of the following is a CDMA standard of second generation network? (CO3, K5)

(a) ETACS (b) EDGE

(c) IS-95 (d) IS-136

7. Which modulation scheme is used by Bluetooth? (CO4, K3)

(a) GFSK

(b) DQPSK

(c) BPSK

(d) MSK

8. What is the dimension of object as compared to wavelength of propagating wave when reflection occurs? (CO4, K4)

(a) Small (b) Same

(c) Very small (d) Large

9. Which of the following is not used to improve received signal quality over small scale times and distance? (CO5 K2)

(a) Diversity

(b) Channel coding

(c) Equalization

(d) Modulation

10. Which of the following is not a property of block code? (CO5, K2)

(a) Cyclic (b) Non linearity

(c) Linearity (d) Systematic

Part B (5 × 5 = 25)

Answer **all** the questions not more than 500 words each.

11. (a) Explain Infrared and UHF narrow band. (CO1, K2)

Or

(b) Explain radio layer and baseband layer. (CO1, K3)

12. (a) What is UTMS terrestrial radio access network? Explain it. (CO2, K2)

Or

(b) Discuss about UMTS core network architecture. (CO2, K6)

13. (a) Explain about flooding and gossiping. (CO3, K2)

Or

(b) Discuss about real time routing protocols. (CO3, K6)

14. (a) Explain about operating systems for wireless sensor network. (CO4, K3)

Or

(b) Discuss about interfaces and modules. (CO4, K2)

15. (a) Explain about WSN applications. (CO5, K3)

Or

(b) Explain reconfigurable sensor network. (CO5, K2)

Part C (5 × 8 = 40)

Answer **all** the questions not more than 1000 words each.

16. (a) Explain about system architecture and protocol architecture. (CO1, K3)

Or

(b) Discuss about WATM, BRAN and Hiper LAN 2. (CO1, K2)

17. (a) Explain about high speed downlink packet access and protocol. (CO2, K3)

Or

(b) Explain LTE network architecture. (CO2, K3)

18. (a) Explain in detail about Rumor routing. (CO3, K3)

Or

(b) Discuss about hierarchical routing. (CO3, K6)

19. (a) Explain the following :

(i) TINYOS

(ii) MATE

(iii) Magnet OS (CO4, K3)

Or

(b) What is generic components? Explain it. (CO4, K6)

20. (a) Explain about highway monitoring and military applications. (CO5, K3)

Or

(b) Discuss about habitat monitoring and nanoscopic sensor applications. (CO5, K6)

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R2860

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M.Sc. DEGREE EXAMINATION, APRIL – 2025

Second Semester

Computer Science

***Elective* – CLOUD COMPUTING**

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the following objective questions by choosing the correct option.

1. What is Cloud Computing? (CO1, K2)

   (a) Cloud Computing means providing services like storage, servers, database, networking, etc

   (b) Cloud Computing means storing data in a database

   (c) Cloud Computing is a tool used to create an application

   (d) None of the mentioned

2. Which of the following is not a type of cloud server? (CO1, K5)

   (a) Public Cloud Servers

   (b) Private Cloud Servers

   (c) Dedicated Cloud Servers

   (d) Merged Cloud Servers

3. Which of the following is a type of cloud computing service? (CO2, K5)

(a) Service-as-a-Software (SaaS)

(b) Software-and-a-Server (SaaS)

(c) Software-as-a-Service (SaaS)

(d) Software-as-a-Server (SaaS)

4. Which architectural layer is used as a backend in cloud computing? (CO2, K4)

(a) cloud

(b) soft

(c) client

(d) all of the mentioned

5. Which of the following is the most essential element in cloud computing by CSA? (CO3, K4)

(a) Virtualization

(b) Multi-tenancy

(c) Identity and access management

(d) All of the mentioned

6. How many phases are there in Cloud Computing Planning? (CO3, K2)

(a) 1 (b) 5

(c) 3 (d) 6

7. Which one out of the following is available both as the commercial version and open source? (CO4, K5)

(a) ZenOSS (b) SiteUpTime

(c) Zabbix (d) All of the above

8. Which of the following are the features of cloud computing? (CO4, K3)

(a) Security

(b) Availability

(c) Large Network Access

(d) All of the mentioned

9. Applications and services that run on a distributed network using virtualized resources is known as (CO5, K2)

(a) Parallel computing

(b) Soft computing

(c) Distributed computing

(d) Cloud computing

10. Which of the following model consists of the service that you can access on a cloud computing platform? (CO5, K4)

(a) Deployment

(b) Service

(c) Application

(d) None of the mentioned

Part B (5 × 5 = 25)

Answer **all** the questions not more than 500 words each.

11. (a) Discuss utility-oriented computing? (CO1, K2)

Or

(b) Explain about computing platforms and technologies. (CO1, K3)

12. (a) What is virtualization and taxonomy? Explain it. (CO2, K3)

Or

(b) Discuss about reference model and its types of clouds. (CO2, K6)

13. (a) What is data storage approaches? Explain it. (CO3, K5)

Or

(b) Explain about cloud application design methodology. (CO3, K3)

14. (a) Explain about data structure in Python. (CO4, K3)

Or

(b) Elaborate explain about windows Azure. (CO4, K4)

15. (a) Explain about clustering Bigdata in detail. (CO5, K3)

Or

(b) What is cloud security architecture? Explain it. (CO5, K4)

Part C (5 × 8 = 40)

Answer **all** the questions not more than 1000 words each.

16. (a) Explain about building cloud computing environment. (CO1, K5)

Or

(b) Discuss about cloud concept and technologies. (CO1, K6)

17. (a) Explain in detail about compute service and storage service. (CO2, K5)

Or

(b) Explain about cloud database services and application services. (CO2, K5)

18. (a) Write document storage and map reduce. (CO3, K4)

Or

(b) Discuss about social media analytics. (CO3, K3)

19. (a) Explain the following : (CO4, K3)

(i) map reduced

(ii) packages of interest

(iii) designing a RESTFUL web API.

Or

(b) Explain file handling in Python. (CO4, K3)

20. (a) Discuss about classifications of Bigdata. (CO5, K2)

Or

(b) Discuss about cloud for industry, healthcare and education. (CO5, K6)

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