

**A-9845**

**Sub. Code**

**4MCE1C1**

**M.Sc. DEGREE EXAMINATION, APRIL 2021 &**

**Supplementary/Improvement/Arrear Examinations**

**First Semester**

**Computer Science**

**APPLIED MATHEMATICS FOR COMPUTER SCIENCE**

**(CBCS – 2014 onwards)**

Time : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Write the dual of  $(\neg P \vee \neg Q) \wedge (T \vee R)$ .
2. Show that  $\neg(P \uparrow Q) \Leftrightarrow \neg P \downarrow \neg Q$ .
3. Explain free and bound variables in a predicate calculus with an example.
4. State the generalisation and specification rules of quantifiers in predicate calculus.
5. Define simple graph with an example.
6. Define Hamiltonian graph with an example.
7. Define redundant constraint.
8. What is meant by degeneracy of a LPP?
9. What is unbalance transportation problem? How to solve it?
10. State the differences between transportation problem and assignment problem.

**Part B**

(5 × 5 = 25)

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

11. Prove that.

(a)  $P \rightarrow (Q \rightarrow R) \Leftrightarrow (P \wedge Q) \rightarrow R$

Or

(b)  $(P \rightarrow Q) \wedge (Q \rightarrow R) \Rightarrow (P \rightarrow R)$ .

12. (a) Show that  $\{\downarrow\}$  is not associative.

Or

(b) Show that  $(\exists x)M(x)$  follows logically the premises  $(\forall x)(H(x) \rightarrow MX), (\exists x)H(x)$ .

13. (a) Explain utility problem, represent the problem by means of graph. Does the problem have a solution?

Or

(b) Draw the graph represented by the following

adjacency matrix  $\begin{pmatrix} 1 & 2 & 0 & 1 \\ 2 & 0 & 3 & 0 \\ 0 & 3 & 1 & 1 \\ 1 & 0 & 1 & 0 \end{pmatrix}$ .

14. (a) Solve the following LPP by graphical method

Maximize  $z = 3x_1 + 4x_2$

Subject to  $x_1 + x_2 \leq 450$ ;

$2x_1 + x_2 \leq 600$ ;

$x_1, x_2 \geq 0$

Or

(b) Using simplex method solve

$$\text{Maximize } z = 2x_1 + x_2$$

$$\text{Subject to } 3x_1 + 2x_2 \leq 12;$$

$$x_1 + 2x_2 \leq 7;$$

$$x_1 + x_2 \leq 5;$$

$$x_1, x_2 \geq 0$$

15. (a) Find the initial basic feasible solution for the following transportation problem by least cost method.

	$D_1$	$D_2$	$D_3$	$D_4$	Supply
$F_1$	11	13	17	14	250
$F_2$	16	18	14	10	300
$F_3$	21	24	13	10	400
Demand	200	225	275	250	

Or

(b) Solve the following assignment problem

	$M_1$	$M_2$	$M_3$	$M_4$	$M_5$
$J_1$	10	11	4	2	8
$J_2$	5	6	9	12	14
$J_3$	7	11	10	14	12
$J_4$	13	15	11	10	7

**Part C**

(3 × 10 = 30)

Answer any **three** questions.

16. Obtain the PDNF and PCNF of the logical statement  $(\neg P \rightarrow R) \wedge (Q \not\Rightarrow P)$ .

17. Show that  $\neg P$  follows logically from  $R \rightarrow \neg Q$ ,  $R \vee S$ ,  $S \rightarrow \neg Q$ ,  $P \rightarrow Q$  using indirect method of proof.

18. Find the number of paths of length 4 from the vertex  $D$  to the vertex  $E$  in the undirected graph with the following adjacency matrix.

$$\begin{array}{c}
 \begin{array}{ccccc}
 & \text{A} & \text{B} & \text{C} & \text{D} & \text{E} \\
 \text{A} & 0 & 1 & 0 & 1 & 0 \\
 \text{B} & 1 & 0 & 1 & 0 & 1 \\
 \text{C} & 0 & 1 & 0 & 1 & 1 \\
 \text{D} & 1 & 0 & 1 & 0 & 0 \\
 \text{E} & 0 & 1 & 1 & 0 & 0
 \end{array}
 \end{array}$$

19. Use Two-phase simplex method to solve

$$\text{Maximize } z = 5x_1 + 8x_2,$$

$$\text{Subject to } 3x_1 + 2x_2 \geq 3;$$

$$x_1 + 4x_2 \geq 4;$$

$$x_1 + x_2 \leq 5; \quad .$$

$$x_1, x_2 \geq 0$$

20. Solve the following transportation problem to maximize profit.

	A	B	C	D	Supply
I	40	25	22	33	100
II	44	35	30	30	30
III	38	38	28	30	70
Demand	40	20	60	30	

**A-9846**

**Sub. Code**

**4MCE1C3**

**M.Sc. DEGREE EXAMINATION, APRIL 2021 &  
Supplementary/Improvement/Arrear Examinations**

**First Semester**

**Computer Science**

**ADVANCED JAVA PROGRAMMING**

**(CBCS – 2014 onwards)**

Time : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. List the four types of ODBC drivers.
2. What is meant by Metadata?
3. What is use of URL class in Java?
4. Define Internet address.
5. What's an Enterprise java Bean(EJB) container?
6. What is bound property?
7. What are servlet life cycle methods?
8. Define Cookie.
9. What is Event Source?
10. List the various panes.

**Part B**

(5 × 5 = 25)

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

11. (a) Discuss about Relational database.

Or

- (b) Discuss about RowSet interface.

12. (a) Discuss in detail about TCP SenverSocket.

Or

- (b) Write short notes on RMI.

13. (a) What is Bean? List its advantages.

Or

- (b) Discuss about BeanInfo interface.

14. (a) Discuss about Generic servlet.

Or

- (b) Write short notes on HTTP servlet.

15. (a) Illustrate the various component of swing.

Or

- (b) Discuss about four type of swing button.

**Part C**

(3 × 10 = 30)

Answer any **three** questions.

16. Explain in detail about JDBC connectivity.
17. Discuss about URL class with example program to examine its properties.
18. Explain Introspection.

19. Discuss about servlet API.
  20. Discuss about Font class and its methods with example program.
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**A-9847**

**Sub. Code**

**4MCE1C4**

**M.Sc DEGREE EXAMINATION, APRIL 2021 &**

**Supplementary/Improvement/Arrear Examinations**

**First Semester**

**Computer Science**

**PRINCIPLES OF COMPILER DESIGN**

**(CBCS – 2014 onwards)**

Time : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Differentiate between Compilers and Translators.
2. Give the algebraic properties of regular expression?
3. What are the roles of Free Grammar?
4. Define LALR parsing tables.
5. What is meant by a syntax-directed translation?
6. Give short note about call-by-name?
7. Define Symbol Tables.
8. List the need for Phase Errors.
9. What is the purpose of DAG?
10. Write the addressing mode and associated costs in the target machine.



**Part B**

(5 × 5 = 25)

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

11. (a) Write short notes Intermediate code Generation.

Or

- (b) Explain about the design of Lexical Analyzers.

12. (a) Give the concepts of Derivations and parse trees.

Or

- (b) Describe the features of LR parsers.

13. (a) Differentiate between Parse trees and syntax trees.

Or

- (b) Write short notes on Postfix translations.

14. (a) Discuss about the Data structures for symbol tables.

Or

- (b) Write down the concept of Syntactic phase errors.

15. (a) Explain about the Loop Optimization with example.

Or

- (b) Discuss the Simple Code Generator with example.

**Part C**

(3 × 10 = 30)

Answer any **three** questions.

16. Discuss in detail about the Phases of Compiler.
17. Construct a predictive parsing table for the grammar  
E → E + T / F  
T → T \* F / F  
F → (E) / id
18. What is a three address code? Mention its types. How would you implement these address statements? Explain with suitable examples.
19. Describe in detail about the Run time Storage administration with example.
20. Explain DAG representation of basic blocks.

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**A-9848**

**Sub. Code**

**4MCE1E3**

**M.Sc. DEGREE EXAMINATION, APRIL 2021 &**

**Supplementary/Improvement/Arrear Examinations**

**First Semester**

**Computer Science**

**Elective - SOFTWARE ENGINEERING**

**(CBCS – 2014 onwards)**

Time : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. What are the characteristics of the software?
2. List out the elements of SCM.
3. What are non-functional requirements?
4. Write down the types of errors in an SRS.
5. Define Risk Management.
6. What is Activity Monitoring?
7. Define System Methodology.
8. Mention the several levels of cohesion.
9. Define Failure.
10. What is Transition Tree Coverage (TT)?

**Part B**

(5 × 5 = 25)

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

11. (a) Briefly discuss about Inspection Process.

Or

- (b) Describe the CM functionality.

12. (a) Discuss the Requirement Process in detail.

Or

- (b) Explain the characteristics of SRS.

13. (a) Describe the activities of SCM plan.

Or

- (b) Discuss the Risk Control.

14. (a) Write short notes on abstraction.

Or

- (b) Discuss on Transaction Analysis.

15. (a) Describe Data-Flow based Testing.

Or

- (b) Explain the levels of Testing in detail.

**Part C**

(3 × 10 = 30)

Answer any **three** questions.

16. Explain the steps involved in the prototyping.

17. Explain the Quality Metrics in detail.

18. Discuss in detail about COCOMO model.
  19. Explain in detail about cohesion and coupling.
  20. Explain the Test Case Specification, Execution and Analysis in Testing Process.
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**A-9849**

**Sub. Code**

**4MCE2C1**

**M.Sc. DEGREE EXAMINATION, APRIL 2021 &**

**Supplementary/Improvement/Arrear Examinations**

**Second Semester**

**Computer Science**

**COMPUTER SYSTEM ARCHITECTURE**

**(CBCS – 2014 onwards)**

Time : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. How do parallel computer architecture are classified?
2. State the use of flag bits (or) status bits.
3. What are the various phases of a instruction cycle?
4. Define Instruction code.
5. What are the limitations of ILA?
6. What is meant by static branch prediction?
7. Define the terms, "Hit ratio" and "Miss rate" related to cache memory.
8. Differentiate Half duplex and Full duplex Communication.
9. Define the term, "multithreading" with respect to parallel system.
10. What are performances issues occur in a distributed shared memory systems?

**Part B**

(5 × 5 = 25)

Answer **all** the questions.

11. (a) List and explain any five types of addressing modes with illustration.

Or

- (b) Write short notes on:  
(i) Instruction Format.  
(ii) Operand and Operation.  
(iii) Control Flow Instructions.  
(iv) Encoding an Instruction Set.

12. (a) Briefly explain the floating point representation with an example?

Or

- (b) How will you perform arithmetic or logic operation?

13. (a) Explain the multiple bus organization in detail.

Or

- (b) Give a brief account on software speculation for a parallel system.

14. (a) Comparison between asynchronous and synchronous data transfer?

Or

- (b) Explain IOP.

15. (a) Write the formula for calculating time between instructions in a pipelined processor.

Or

- (b) Discuss the influence of pipelining in detail.

**Part C**

(3 × 10 = 30)

Answer any **three** questions.

16. Explain with neat diagram, the various classification of instruction set architecture.
  17. Discuss in detail about division algorithm in detail with diagram and examples.
  18. What is meant by microprogramming? Draw and explain the micro programmed control unit.
  19. Discuss the various mapping schemes used in cache design.
  20. Explain the difficulties faced by parallel processing programs.
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**A-9808**

**Sub. Code**

**4MCE2C2**

**M.Sc. DEGREE EXAMINATION, APRIL 2021 &  
Supplementary/Improvement/Arrear Examinations**

**Second Semester**

**Computer Science**

**.NET TECHNOLOGY**

**(CBCS – 2014 onwards)**

Time : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. What you meant by Assemblies?
2. List out uses of Common Language Runtime.
3. Define Array.
4. Differentiate between Scroll bars and Track bars.
5. How to import namespace in ASP.Net?
6. What is the purpose of Logging?
7. Define objects.
8. What you meant by Polymorphism?

9. Define Data Grid.
10. What are the advantages of ADO.Net?

**Part B**

(5 × 5 = 25)

Answer **all** questions.

11. (a) Explain the various types of .Net component.  
Or  
(b) Write short notes on Namespace.
12. (a) Discuss the basis of dynamics Array.  
Or  
(b) Explain the Features of File handling.
13. (a) How Http Request is different from Http Response?  
Explain with an example.  
Or  
(b) Write short notes on Data controls.
14. (a) Explain the concept of Encapsulation.  
Or  
(b) Describe about shadowing.
15. (a) Explain the features of Data objects.  
Or  
(b) What is meant by Repeater? Explain its significance.

**Part C**

(3 × 10 = 30)

Answer any **three** questions.

16. Explain in detail about basic Terminology in .Net Framework.
17. Describe about how to create a multiple forms in Visual basic .Net
18. Explain the overview of AJAX controls.
19. Discuss and detail about different types of Inheritance.
20. Explain the various characteristics of ADO.Net.

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**A-9850**

**Sub. Code**

**4MCE2C3**

**M.Sc. DEGREE EXAMINATION, APRIL 2021 &**

**Supplementary/Improvement/Arrear Examinations**

**Second Semester**

**Computer Science**

**OPERATING SYSTEM**

**(CBCS – 2014 onwards)**

Time : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Define distributed system.
2. What is system structure?
3. Define synchronization.
4. Difference between process and Thread.
5. What is a semaphore?
6. Draw the block diagram of system model.
7. What is meant by swapping?
8. Define virtual memory.
9. What are Distributed File Systems?
10. Define IO file systems.

**Part B**

(5 × 5 = 25)

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

11. (a) Explain the operating system structure and its components.

Or

- (b) Discuss in detail the concept of virtual machines, with neat sketch.

12. (a) Write short notes on process control and file manipulation.

Or

- (b) Distinguish between preemptive and non-preemptive scheduling.

13. (a) What is a deadlock? What are the necessary conditions for a deadlock to occur?

Or

- (b) Explain about classical synchronization.

14. (a) Discuss on non contiguous allocation.

Or

- (b) What is demand paging and what is its use?

15. (a) Write in detail about file system implementation.

Or

- (b) Explain tertiary storage structure.

**Part C**

(3 × 10 = 30)

Answer any **three** questions.

16. Give a detailed description on system calls and its types.  
17. Describe in detail CPU-scheduling algorithms.

18. Explain in detail about banker's algorithm with example.
  19. Explain variable partitioned memory management.
  20. Explain the various disk scheduling techniques with an example.
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**A-9851**

**Sub. Code**

**4MCE2E1**

**M.Sc. DEGREE EXAMINATION, APRIL 2021 &**

**Supplementary/Improvement/Arrear Examinations**

**Second Semester**

**Computer Science**

**Elective-MOBILE COMPUTING**

**(CBCS – 2014 onwards)**

Time : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. What is mobility and portability?
2. List out the characteristics of communication devices.
3. What is the 3 different basic scheme of analog modulation?
4. What are the advantages of cellular System?
5. What is Mobile Routing?
6. What are the service provided by Foreign agent?
7. What is Encapsulation and Decapsulation?
8. What is unicast broadcasting?
9. What are the main function of DHCP?
10. What is Reverse Tunneling?

**Part B**

(5 × 5 = 25)

Answer **all** the questions.

11. (a) Explain the Various Application of Mobile Computing.

Or

- (b) Explain in detail about how mobile IP works.

12. (a) Describe in detail about signal propagation in wireless Transmission.

Or

- (b) Discuss about the security used in GSM.

13. (a) Explain in detail about Agent Advertisement procedure.

Or

- (b) Explain in detail about Mobile node registration procedure.

14. (a) Explain in detail about mobile routers in mobile IP.

Or

- (b) Describe about mobile key request in detail.

15. (a) What advantages does the use of IPV6 offer for mobility? What are the entities of mobile IP?

Or

- (b) Explain the concept of Ingress Filtering.

**Part C**

(3 × 10 = 30)

Answer any **three** questions.

16. Describe the architecture of mobile computing with neat diagram.
17. What is Multiplexing? Explain the different types of multiplexing techniques state their merits and demerits.



18. Discuss about Registration process in detail.
  19. Explain in detail about Route Optimization in mobile IP.
  20. With a neat diagram explain DHCP and its protocol architecture.
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**A-9852**

**Sub. Code**

**4MCE2E3**

**M.Sc. DEGREE EXAMINATION, APRIL 2021 &  
Supplementary/Improvement/Arrear Examinations  
Second Semester  
Computer Science  
Elective -COMPUTER GRAPHICS**

**(CBCS – 2014 onwards)**

Time : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. What is meant by a Computer Animation?
2. Define Graphic Software.
3. What are the features of Area filling?
4. List the various Transformation Commands.
5. What is meant by a Segment files?
6. Give the features of Interactive Picture.
7. What is meant by 3D Coordinate systems?
8. Define Rotation.
9. What is meant by a Viewing Transformation?
10. Give the concept of Back face removal.

**Part B**

(5 × 5 = 25)

Answer **all** the questions.

11. (a) Write short notes on Image Processing with example.

Or

- (b) Describe about the Character Generation.

12. (a) Briefly discuss about the Bundled Attributes with example.

Or

- (b) Write short notes on raster methods for transformations.

13. (a) Explain about the Segment concepts.

Or

- (b) Discuss the Construction techniques with example.

14. (a) Describe the concept of 3D Graphics Packages.

Or

- (b) Discuss about the Other Transformations with examples.

15. (a) Write a note on Projections.

Or

- (b) Briefly discuss about the Scan line method with example.

**Part C**

(3 × 10 = 30)

Answer any **three** questions.

16. Explain in detail about the Computer-aided design and GUI.

17. Describe about the 2D Transformations with example.

18. Discuss in detail about Windowing Algorithms.
  19. Explain the concept of 3D Display Techniques with suitable example.
  20. Discuss about the Hidden Surface and Hidden Line Removal with example.
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**A-9853**

**Sub. Code**

**4MCE2E5**

**M.Sc. DEGREE EXAMINATION, APRIL 2021 &  
Supplementary/Improvement/Arrear Examinations**

**Second Semester**

**Computer Science**

**Elective- RELATIONAL DATABASE MANAGEMENT  
SYSTEMS**

**(CBCS – 2014 onwards)**

Time : 3 Hours

Maximum : 75 Marks

**Part A**

**(10 × 2 = 20)**

Answer **all** questions.

1. Define DBMS.
2. What is meant by Hashing?
3. Give the features of File organization.
4. Define Splitting.
5. Expand ISBL.
6. What are the functions of Normal Forms?
7. What is meant by a Cryptosystem?
8. Define Locking.
9. Define Null values.
10. How to drop a table using SQL?

**Part B**

(5 × 5 = 25)

Answer **all** questions.

11. (a) Explain the Data Models using DBMS.

Or

- (b) Write a note on Buffer Management.

12. (a) Write short notes on Indexed file organization.

Or

- (b) Discuss about the Linear Splitting with example.

13. (a) Write a note on Relational calculus with example.

Or

- (b) Discuss about the Functional Dependencies.

14. (a) Write down the Implementation of Statistical database security with example.

Or

- (b) Write short notes on Database Recovery.

15. (a) Discuss about the DML Commands and its types.

Or

- (b) Write a note on joining multiple tables in a query.

**Part C**

(3 × 10 = 30)

Answer any **three** questions.

16. Explain in detail about the Secondary storage devices with example.
17. Describe the B-tree based indexed file organization in detail.

18. Discuss about the overall structure of Relational data model.
  19. Explain in detail
    - (a) Concurrency control with example.
    - (b) Non-Locking Schedules.
  20. Discuss about the Data Access SQL commands and Embedded SQL commands.
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**A-9809**

**Sub. Code**

**4MCE3C1**

**M.Sc. DEGREE EXAMINATION, APRIL 2021 &  
Supplementary/Improvement/Arrear Examinations**

**Third Semester**

**Computer Science**

**CRYPTOGRAPHY AND NETWORK SECURITY**

**(CBCS – 2014 onwards)**

Time : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Differentiate between Interruption and Interception.
2. Use Caesar cipher with key = 15 to encrypt the message "Hello".
3. Distinguish between diffusion and confusion.
4. What are the disadvantages of double DES?
5. How keys are exchanged in Diffie - Hellman algorithm?
6. Which four tasks are performed in each round of AES Cipher?
7. Define weak collision property of a hash function.
8. Differentiate conventional (symmetric) from public key (asymmetric) encryption.



9. What are the applications of IPSec?
10. What are the services provided by PGP services?

**Part B**

(5 × 5 = 25)

Answer **all** questions.

11. (a) Describe the model for network security with neat sketch.

Or

- (b) Write any three transposition ciphers with examples.
12. (a) Explain in detail Feistel Block Cipher structure with neat sketch. Describe Triple DES and its applications.

Or

- (b) Explain AES Structure. What is the purpose of the state array?
13. (a) Critically analyze the security of RSA.

Or

- (b) Enumerate Diffie-Hellman Key exchange for encryption and decryption with suitable examples
14. (a) Explain Message Authentication Requirements and what are the attacks related to message communication?

Or

- (b) Write down the steps involved in Elgamal Digital Signature Scheme used for authenticating a person.

15. (a) What is SSL? Explain about SSL record protocol format.

Or

- (b) Explain IP security Architecture and also explain basic combinations of security associations with a neat diagram.

**Part C**

(3 × 10 = 30)

Answer any **three** questions.

16. Describe the substitution Techniques in detail.
17. Formulate the single round of DES algorithm and design the key discarding process of DES.
18. Explain briefly the idea behind Elliptic Curve Cryptosystem.
19. Briefly explain Diffie – Hellman key exchange with an example.
20. Discuss the threats faced by an e-mail and explain its security requirements to provide a secure e-mail service.

**A-9855**

**Sub. Code**

**4MCE3C2**

**M.Sc. DEGREE EXAMINATION, APRIL 2021 &**

**Supplementary/Improvement/Arrear Examinations**

**Third Semester**

**Computer Science**

**PROGRAMMING IN PHP**

**(CBCS – 2014 onwards)**

Time : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. What are rules for naming a PHP variable?
2. How will you concatenate two strings in PHP?
3. How can you get the size of the array?
4. Give the syntax to define a function using PHP.
5. How can you open a file in PHP?
6. When to use GET and POST methods?
7. What are the three places where the data can be stored in PHP?
8. How will you create a MySQL database using PHP?
9. How will you check if session variable is already set or not in PHP?
10. What are all the features of Ajax?

**Part B**

(5 × 5 = 25)

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

11. (a) How does PHP work with the web server? Explain.

Or

- (b) Explain switch statement of PHP with syntax and example.

12. (a) Explain any five string manipulating function of PHP with example.

Or

- (b) Explain various ways to pass arguments to a function in PHP.

13. (a) Explain the functions available to read a file and write contents to a file.

Or

- (b) Explain any five functions offered by PHP for searching strings using regular expressions.

14. (a) Explain how to create, alter, and delete MySQL database tables.

Or

- (b) Give the anatomy of cookies. Explain the procedure to set and delete a cookie with PHP.

15. (a) Explain the creation and destruction of a session, and setting and retrieval of the session id.

Or

- (b) Explain PHP's file upload and download handling capabilities.

**Part C**

(3 × 10 = 30)

Answer any **three** questions.

16. Explain various datatypes supported by PHP with example. How will you convert between data types using type casting?
  17. How is array declared in PHP? Explain various types of array with suitable examples.
  18. Write a script to get the name, date of birth, and Email address from the user and displays this information back to the browser window after validation.
  19. Explain constructor and destructor in PHP with example.
  20. Describe XMLHttpRequest object methods and properties.
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**A-9856**

**Sub. Code**

**4MCE3C3**

**M.Sc. DEGREE EXAMINATION, APRIL 2021 &**

**Supplementary/Improvement/Arrear Examinations**

**Third Semester**

**Computer Science**

**DATA MINING AND DATA WAREHOUSING**

**(CBCS – 2014 onwards)**

Time : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. What is data integration? Write down the issues to consider during data integration.
2. Define Data Mining.
3. How is a data warehouse different from a database? How are they similar?
4. Briefly explain about Rule based classification.
5. Define frequent patterns.
6. What is a decision tree? Explain how it is used for classification
7. List various types of Cluster Analysis.
8. Explain briefly about Grid based methods.
9. Explain about mining in the World Wide Web?
10. What is Text Mining?

**Part B**

(5 × 5 = 25)

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

11. (a) Illustrate the major issues in data mining.

Or

- (b) Discuss the motivating challenges for data mining.

12. (a) Briefly explain the three tier Architecture of a data warehouse.

Or

- (b) Why we need a separate Data Warehouse? Explain.

13. (a) Briefly explain about Bayesian classification.

Or

- (b) Outline Mining Multilevel Association Rules from Transactional Databases.

14. (a) Explain about Model based clustering methods.

Or

- (b) Suppose that the data for analysis includes the attribute age. The age values for the data tuples are 13, 15, 16, 16, 19, 20, 20, 21, 22, 22, 25, 25, 25, 25, 30, 33, 33, 35, 35, 35, 35, 36, 40, 45, 46, 52, 70. Use smoothing by bin means to smooth the data, using a bin depth of 3.

15. (a) Explain about Multimedia Data Mining.

Or

- (b) What are various Data Mining tools?

**Part C**

(3 × 10 = 30)

Answer any **three** questions.

16. Describe the various data reduction techniques.  
17. Discuss the concepts of OLAP and its advantages.

18. Explain multilevel association rules with example.
  19. Briefly explain different types of data in Cluster Analysis.
  20. Write in detail about the Spatial Data mining and Web Mining.
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**A-9857**

**Sub. Code**

**4MCE3E1**

**M.Sc. DEGREE EXAMINATION, APRIL 2021 &**

**Supplementary/Improvement/Arrear Examinations**

**Third Semester**

**Computer Science**

**Elective- SOFT COMPUTING**

**(CBCS – 2014 onwards)**

Time : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. What is soft computing?
2. Define artificial intelligence?
3. What are genetic operators?
4. Define crossover and mutation.
5. What are perceptions?
6. What is Hebbian learning?
7. What are linguistic variables and linguistic terms?
8. What is fuzzy reasoning?
9. What are decision trees?
10. What is meant by input space partitioning in rule base structure?

**Part B**

(5 × 5 = 25)

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

11. (a) Explain the characteristics of soft computing.

Or

- (b) Discuss the goals of conventional AI research.

12. (a) Describe the machine learning approach to acquire knowledge.

Or

- (b) Discuss the suitability of GA for machine learning.

13. (a) Explain the backpropagation learning rule.

Or

- (b) Describe the architecture and learning methods of radial basis function networks.

14. (a) Explain fuzzy if -then rules and fuzzy reasoning.

Or

- (b) Describe fuzzy membership functions.

15. (a) Explain fuzzy C-means clustering.

Or

- (b) Explain ANFIS architecture.

**Part C**

(3 × 10 = 30)

Answer any **three** questions.

16. Describe the historical sketch from conventional AI to computational intelligence.
17. Explain the characteristics and components of genetic algorithms.

18. Explain the architecture and learning rule for unsupervised learning neural networks.
  19. Discuss the characteristics of fuzzy inference and expert systems.
  20. Describe the architecture of coactive neuro- fuzzy modeling.
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**A-9858**

**Sub. Code**

**4MCE3E3**

**M. Sc. DEGREE EXAMINATION, APRIL 2021 &  
Supplementary/Improvement/Arrear Examinations**

**Third Semester**

**Computer Science**

**Elective- MULTIMEDIA SYSTEM**

**(CBCS – 2014 onwards)**

Time : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. List the applications of multimedia.
2. Define hypermedia.
3. What is font?
4. What is compressing bitmaps?
5. Define speech recognition.
6. What is MIDI?
7. Write the objectives of video Tele conferencing.
8. What is user interface?
9. Define virtual Reality.
10. List the applications of Virtual Reality

**Part B**

(5 × 5 = 25)

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

11. (a) How the multimedia is used in networking?

Or

- (b) Write short notes on multimedia environment.

12. (a) Discuss about backdrops and hanging pictures.

Or

- (b) Differentiate between analog and digital video.

13. (a) Write short notes on MIDI Sequencing video Technology.

Or

- (b) Briefly explain about digital video recording.

14. (a) Briefly explain about MIME and its features.

Or

- (b) Write short notes on performance measurement.

15. (a) Briefly explain about modes of interactions in virtual reality

Or

- (b) Write short notes on integrated VR.

**Part C**

(3 × 10 = 30)

Answer any **three** questions.

16. Describe the functions of multimedia hardware and software in detail.

17. Explain the following

- (a) Controlling Palette (5)

- (b) Animation (5)

18. Describe in detail about JPEG Image compression standards.
  19. Explain different Markup Language with suitable example.
  20. Discuss in detail about the Virtual reality software and its application.
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**A-9859**

**Sub. Code**

**4MCE3E6**

**M.Sc. DEGREE EXAMINATION, APRIL 2021 &**

**Supplementary/Improvement/Arrear Examinations**

**Third Semester**

**Computer Science**

**Elective — WAP AND XML**

**(CBCS – 2014 onwards)**

Time : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. What are the advantages of WAP 1.2?
2. Give the WAP internal structure.
3. List the Functions of WAP gateway.
4. What is meant by an Extensible markup language?
5. Define WML Script.
6. List the concepts of Operators in WML.
7. Define XML applications.
8. What is meant by XSD File?
9. Define XSL.
10. Give the concept of the Character sets in XSL.

**Part B**

(5 × 5 = 25)

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

11. (a) Explain the concept of WTA and Push features.

Or

- (b) Write short notes on WAP resources with example.

12. (a) Discuss the Implementation of Web Model versus the WAP Model.

Or

- (b) Describe the features of WML Structure.

13. (a) Discuss about the Need for XML script with example.

Or

- (b) Describe the WML Standard Libraries.

14. (a) Explain the list of an XML Document with example.

Or

- (b) Write down the advantages of the XML format.

15. (a) Describe about the Empty tags in XSL with example.

Or

- (b) Discuss the Procedure to Write XML Unicode.

**Part C**

(3 × 10 = 30)

Answer any **three** questions.

16. Describe the overall concept of WAP application architecture with example.



17. Explain about the Basic WML concepts in detail.
  18. Discuss the features of Variables and Literals in WML scripts in detail.
  19. Explain in detail about the Implementation of XML applications.
  20. Describe the Foreign Languages and Non Roman Text in XSL concepts.
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