

**D- 6883**

**Sub. Code**

**34111**

DISTANCE EDUCATION  
M.Sc. DEGREE EXAMINATION.  
MAY 2021 EXAMINATION  
&  
MAY 2020 ARREAR EXAMINATION  
First Semester  
Computer Science

DESIGN AND ANALYSIS OF ALGORITHMS

(CBCS 2018-19 Academic Year onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Write any four characteristics of algorithms.
2. How many types of asymptotic notations are used to represent the complexity of an algorithm?
3. Write the procedure for divide and conquer.
4. What is searching? Write their types.
5. Define optimal solution.
6. What are the uses of binary search tree?
7. How decrease and conquer methods work?
8. Define presorting.

9. Define Hamiltonian cycle.
10. What is backtracking?

PART B — (5 × 5 = 25 marks)

Answer ALL questions, Choosing either (a) or (b).

11. (a) Discuss about fundamental procedures for problem solving of algorithms.

Or

- (b) Write short notes on pseudocodes.

12. (a) What is called empirical analysis of algorithm? Explain with example.

Or

- (b) Explain merge sort with example.

13. (a) How to find shortest path using Warshalls's algorithm?

Or

- (b) Explain optimal search binary tree.

14. (a) How does Depth first algorithm work?

Or

- (b) Write short notes on optimization problem.

15. (a) What are Differences between NP-Hard and NP-Complete problem?

Or

- (b) Explain knapsack problem using branch and bound technique.

PART C — ( $3 \times 10 = 30$  marks)

Answer any THREE questions.

16. Explain various asymptotic notations of algorithms.
  17. What is sorting? Explain Quick Sort with example.
  18. Explain greedy method with suitable example.
  19. Define topological order and explain how to solve it?
  20. How do you solve 8-queen problem using backtracking?
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**34112**

DISTANCE EDUCATION

M.Sc. (Computer Science) DEGREE EXAMINATION.

MAY 2021 EXAMINATION

&

MAY 2020 ARREAR EXAMINATION

First Semester

APPLIED MATHEMATICS FOR COMPUTER SCIENCE

(CBCS 2018–19 Academic Year onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Write the truth table for  $\neg(P \vee Q)$ .
2. If X represents "Ram Likes Coffee" and Y represents "Sam Likes Coffee". Write in symbolic form the statement "Both Ram and Sam like Coffee".
3. What do you mean by predicate?
4. Define Universal specification
5. What is multigraph?
6. What is tree? Give example.
7. What is an artificial variable?
8. What do you mean by basic feasible solution?
9. How the problem of degeneracy arises in a transportation problem?
10. Mention the objective and methods to solve assignment problems.

PART B — (5 × 5 = 25 marks)

Answer ALL questions

11. (a) What are connectives? Explain the conditional and biconditional connectives.

Or

- (b) Without using truth table prove the following equivalence

$$P \rightarrow (Q \vee R) \equiv P \rightarrow Q \vee P \rightarrow R.$$

12. (a) Find the conjunctive normal form of the statement

$$(P \wedge (\neg(Q \wedge R))) \vee (P \rightarrow Q)$$

Or

- (b) Explain Universal and existential quantifiers with their notations.

13. (a) Explain the following:

- (i) Degree of a Vertex
- (ii) Path
- (iii) Cycle
- (iv) Connected Graph

Or

- (b) What is a binary tree? Construct the binary tree for the following expression.

$$(A * B - C)^D - (E * F + G)$$

14. (a) What is LPP? State a LPP in the mathematical format.

Or

- (b) Solve the following LPP by graphical method

$$\text{Maximize } z = 12x_1 + 9x_2$$

Subject to

$$2x_1 + x_2 \leq 500$$

$$x_1 + x_2 \leq 400$$

$$0 \leq x_1 \leq 200$$

$$0 \leq x_2 \leq 350$$

15. (a) What is a transportation problem? Illustrate the North West Corner rule to solve Transportation problem.

Or

- (b) Consider the problem of assigning 5 jobs to 5 persons - the assignment costs are given as follows:

	1	2	3	4	5
A	8	5	2	6	1
B	0	9	5	5	4
C	3	8	9	2	6
D	4	3	1	0	3
E	9	5	8	9	5

Determine the optimum assignment schedule and cost.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions

16. (a) Determine whether the statement is tautology or contradiction.

$$\neg[(Q \rightarrow P) \wedge R \wedge (P \rightarrow Q)]$$

- (b) Obtain the PDNF of the statement  $(\neg P \vee \neg Q) \rightarrow P \leftrightarrow \neg Q$ .

17. (a) State and explain the rules of inference.

- (b) Show that  $(T \wedge S)$  can be derived from the premises  $P \rightarrow Q, Q \rightarrow \neg R, R, P \vee (T \wedge S)$ .

18. What is a graph? Explain the matrix representation of graphs with example.

19. Solve the following LPP by Simplex method.

$$\text{Maximize } x_1 + x_2 + 4x_3 + 2x_4$$

Subject to

$$x_1 + 3x_3 + x_4 \leq 4$$

$$x_3 + 2x_4 \leq 3$$

$$x_1 + 4x_2 + x_3 \leq 3$$

$$\text{and } x_1, x_2, x_3, x_4 \geq 0$$

20. Find the optimal solution to the following transportation problem by obtaining the initial solution using VAM method.

		Destinations				
Origin	D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	D <sub>4</sub>	Supply	
A	8	9	5	11	19	
B	2	6	7	13	21	
C	3	2	14	8	5	
D	15	13	9	6	17	
E	9	10	11	4	8	
Demand	28	17	15	10		

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**34113**

DISTANCE EDUCATION

M.Sc. (CS) DEGREE EXAMINATION.

MAY 2021 EXAMINATION

&

MAY 2020 ARREAR EXAMINATION

First Semester

Computer Science

ADVANCED JAVA PROGRAMMING

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. What is Meta data?
2. What are type-2 and type-3 drivers?
3. State about UDP datagram.
4. Differentiate client and server sockets.
5. Point out the use of Java Bean.
6. Define persistence.
7. What is cookies?



8. Define Servlet Parameters.
9. What are tabbed panes?
10. Mention the use of buttons and combo box.

PART B — (5 × 5 = 25 marks)

Answer ALL questions choosing either (a) or (b).

11. (a) Elucidate all steps involved in JDBC connectivity.

Or

- (b) Illustrate about SQL exception.

12. (a) Discuss about TCP/IP Client Sockets.

Or

- (b) Write notes on client-server application using RMI

13. (a) Write a Java program for writing the data to a file.

Or

- (b) How beans are used to build an application?  
Explain with example.

14. (a) What are the different methods in HTTP servlet?  
Explain briefly.

Or

- (b) What is session tracking? Illustrate.

15. (a) Write a Java program to dynamically changing the font and color of Text using Multithreading.

Or

- (b) Explain any five tools available in AWT.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Develop a JSP code to create a Web site for Car Company.
  17. Write a Java program to pass message between client and server.
  18. How to create a JAR file? Explain with example.
  19. Elucidate with suitable diagram about servlets architecture and its tasks.
  20. Write an applet program to draw Human face.
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**Sub. Code**

**34121**

DISTANCE EDUCATION

M.Sc. (Computer Science) DEGREE EXAMINATION.

MAY 2021 EXAMINATION

&

MAY 2020 ARREAR EXAMINATION

Second Semester

COMPUTER SYSTEM ARCHITECTURE

(CBCS 2018-19 Academic Year onwards)

Time : Three hours

Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Define module availability.
2. What is Temporal locality?
3. What is Instruction-Level Parallelism?
4. List out the three types of Data Hazards.
5. What is Multiprocessor cache coherence in Centralized shared memory architecture?
6. State coherence misses in symmetric shared-memory multiprocessor.
7. Mention the inclusion property in memory hierarchy design.
8. Define virtual memory system.

9. What is flash memory?
10. What is the need for interconnection networks?

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions, Choosing either (a) or (b).

11. (a) Discuss the MIMD parallelism category.

Or

- (b) Write short notes on Encoding an ISA.

12. (a) Explain briefly about Instruction-Level parallelism.

Or

- (b) Write short notes on Data Hazards.

13. (a) What are the basic schemes in enforcing coherence?  
Explain.

Or

- (b) Describe the Multiprocessor cache coherence.

14. (a) Explain briefly about the basics of memory hierarchy.

Or

- (b) What is SRAM technology? Explain.

15. (a) Describe various Types of storage devices.

Or

- (b) Explain briefly about memory mapped I/O.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain in detail about Trends in Technology.
  17. Discuss in detail Data dependences and Hazards.
  18. What are the memory consistency models? Explain.
  19. Describe any two advanced optimizations of cache performance.
  20. Discuss the designing of I/O system in detail.
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**34122**

DISTANCE EDUCATION

M.Sc. (Computer Science) DEGREE EXAMINATION.

MAY 2021 EXAMINATION

&

MAY 2020 ARREAR EXAMINATION

Second Semester

DISTRIBUTED OPERATING SYSTEM

(CBCS 2018-19 Academic Year onwards)

Time : 3 hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. What is meant by Heterogeneity?
2. What are communication protocols?
3. Define data link protocol.
4. Give the uses of Routers.
5. What is synchronization?
6. What are problems occurred in inter process communication?
7. Explain untagged representation of data.
8. Mention the two basic components of Call messages.

9. Draw the diagram of distributed shared memory.
10. Write any two facilities provided by PEM.

PART B — (5 × 5 = 25 marks)

Answer ALL questions, Choosing either (a) or (b).

11. (a) Explain about the Workstation server model with a neat diagram.

Or

- (b) What are the LAN topologies? Explain.

12. (a) Explain briefly the protocols for distributed systems.

Or

- (b) Explain the Call by value and call by reference in parameter passing semantics.

13. (a) What is Thrashing? Explain.

Or

- (b) Define Mutual Exclusion and explain mutual exclusion in centralized approach.

14. (a) Explain different ways for recovery from deadlock.

Or

- (b) List the advantages of Replication.

15. (a) Explain about the mutable and immutable files.

Or

- (b) Describe various types of file accessing models.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Draw the diagram and explain about the ISO reference model.
  17. Discuss the Group communication primitives in detail.
  18. What are the consistency models in distributed shared memory? Explain.
  19. Elucidate different types of file caching schemes.
  20. Describe the concurrency control of atomic transaction in distributed operating system.
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**34123**

DISTANCE EDUCATION

M.Sc. (Computer Science) DEGREE EXAMINATION.

MAY 2021 EXAMINATION

&

MAY 2020 ARREAR EXAMINATION

Second Semester

.NET PROGRAMMING

(CBCS 2018-19 Academic Year onwards)

Time : 3 hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

All questions carry equal marks.

1. Expand the term CLR and list down the features of CLR.
2. What are the main components of .NET Framework?
3. Write syntax to define a function in VB.NET.
4. List out the properties of label control.
5. What is the use of scrollable control?
6. What is the difference between Radio button and Check box?
7. What is validation control in ASP.NET?

8. What are the differences between user and custom controls?
9. What are the various properties of data column?
10. What is data grid?

PART B — (5 × 5 = 25 marks)

Answer ALL questions, Choosing either (a) or (b).

All questions carry equal marks.

11. (a) Write short notes on Namespace.  
Or  
(b) Explain briefly about .NET Framework class library.
12. (a) What are the data types available in VB.NET? Explain with an example.  
Or  
(b) Write short notes on Rich Text Boxes.
13. (a) Explain the use of the following controls:  
(i) Buttons  
(ii) Timer  
Or  
(b) How to handle Exception? Explain with suitable example program.
14. (a) Write short notes on the following:  
(i) Http Request  
(ii) Http Response.  
Or  
(b) What is Rich control? Explain the various rich controls with examples.

15. (a) Describe the steps to access data using ADO.NET.  
Or  
(b) Write short notes on Data Binding controls in ADO.NET.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

All questions carry equal marks.

16. Discuss on Object-Oriented Programming Concepts.
17. Explain the various operators in VB.NET with suitable examples.
18. Explain in detail about the process of creating Menus in a window based application.
19. Describe how AJAX controls are used in ASP.NET.
20. Discuss the following ADO.NET features:
- (a) Data set
  - (b) Data list

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**34131**

DISTANCE EDUCATION

M.Sc. (Computer Science) DEGREE EXAMINATION.

MAY 2021 EXAMINATION

&

MAY 2020 ARREAR EXAMINATION

Third Semester

CRYPTOGRAPHY AND NETWORK SECURITY

(CBCS 2018-19 Academic Year onwards)

Time : 3 hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Define the term Network Security.
2. List down the types of attacks in open communication medium.
3. What are the various types of Block Ciphers?
4. Write the advantages of AES Algorithm.
5. What are the principles of Public Key Cryptosystems?
6. How will the Psuedo Random Numbers were generated?
7. What are Message Authentication Codes?
8. What is the purpose of Digital Signatures?
9. Define Pretty Good Privacy.
10. List down the types of firewalls for the Internet Security.

PART B — (5 × 5 = 25 marks)

Answer ALL questions Choosing either (a) or (b).

11. (a) Describe the various Network Security mechanisms.

Or

- (b) Classify the Substitution Techniques with suitable example.

12. (a) Explain in brief about the working principles of Block Ciphers for Symmetric Key Encryption.

Or

- (b) Write short notes on Data Encryption Standard Algorithm with example.

13. (a) Analyze the working procedure for RSA algorithm.

Or

- (b) Describe in detail about the Elliptic Curve Cryptography.

14. (a) Explain the Risk involves in MAC Security.

Or

- (b) What is Message Authentication Code? Explain.

15. (a) Describe in brief about the techniques used for transport layer security.

Or

- (b) Describe the Way, how IP Security policy works.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. What are the various Classical Encryption Techniques? Explain in detail.
  17. Summarize the implementation of AES algorithm, with neat architecture and proper Illustration.
  18. Describe the Diffie - Hellman Key Exchange with suitable example.
  19. Explain, the working of Elgamal Digital Signatures and their Security measures.
  20. What are the Security strategies of Electronic Mail? Discuss.
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**D-6890**

**Sub. Code**

**34132**

DISTANCE EDUCATION

M.Sc. (Computer Science) DEGREE EXAMINATION.

MAY 2021 EXAMINATION

&

MAY 2020 ARREAR EXAMINATION

Third Semester

Computer Science

CLOUD COMPUTING

(CBCS – 2018-19 Academic Year Onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. List the benefits of cloud computing.
2. What are the cloud service models available now?
3. How cloud reaches everyone?
4. List the impact of cloud in group projects.
5. Write the activities in project management.
6. Define cloud storage.
7. What is the role of cloud service provider?

8. What is VMware workstation?
9. What is called VIO server?
10. Define Data centre.

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) What are the characteristics of cloud computing? Explain.

Or

- (b) Write the pros and cons of cloud service development.
12. (a) How you make use of cloud computing for corporation?

Or

- (b) Write a short note on collaborating to-do lists.
13. (a) Discuss the features of event management using cloud service.

Or

- (b) What is word processing in cloud environment?
14. (a) Write about the features of Amazon web service.

Or

- (b) What is Vcloud? How does it work?
15. (a) What is Storage virtualization? Explain.

Or

- (b) Describe the use of hypervisor management software.



PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. How you discover cloud service development service and tools?
  17. Explain about the features in centralizing email communication.
  18. Illustrate the concepts of exploring online scheduling application.
  19. Differentiate various cloud computing platforms.
  20. Define virtualization. How serve virtualization works.
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**D-6891**

**Sub. Code**

**34133**

DISTANCE EDUCATION

M.Sc. (CS) DEGREE EXAMINATION.

MAY 2021 EXAMINATION

&

MAY 2020 ARREAR EXAMINATION

Third Semester

Computer Science

WEB TECHNOLOGY

(CBCS – 2018-19 Academic Year Onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. What is hyperlinks?
2. Mention the need for cascading style sheets.
3. Define DHTML.
4. What is purpose of cookies?
5. What are browsers? Give example.
6. Define namespace.
7. Distinguish server side and client side scripting.

8. State the use of Servlet context object.
9. Write the structure of HTTP Response Message.
10. What is MVC praadigm?

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) List and explain any five HTML elements.

Or

- (b) What is style sheet? Explain the text properties in CSS with suitable example.

12. (a) Explain different data types supported by Java Script.

Or

- (b) How data validation is being done using Java script.

13. (a) Evaluate various levels of DOM.

Or

- (b) What are HTML intrinsic even attributes? Explain.

14. (a) Explain the features of servlets.

Or

- (b) What are Servlet Life Cycle methods? Explain.

15. (a) Write and explain HTTP request message format.

Or

- (b) Write short notes on tomcat server

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Create a HTML document for a Collage home page displaying various courses offered.
17. Explain the objects and arrays in Java script with suitable example.
18. What is DOM? Discuss in detail DOM event handling.
19. Describe the process of generating dynamic content using servlets.
20. What are the types of directive in JSP? Explain each with code.

**D-7332**

**Sub. Code**

**34141**

DISTANCE EDUCATION

M.Sc. (Computer Science) DEGREE EXAMINATION

MAY 2021 EXAMINATION

&

MAY 2020 ARREAR EXAMINATION

Fourth Semester

DATA MINING AND WAREHOUSING

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours

Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. Define schema.
2. Specify the use of genomics data.
3. Define knowledge.
4. Mention about data cleaning.
5. What is classification?
6. State the use of back propagation algorithm.
7. Point out the role of BIRCH algorithm.
8. Distinguish between supervised learning and unsupervised learning.

9. What is text clustering?
10. Define visual data mining.

SECTION B — (5 × 5 = 25 marks)

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

11. (a) Differentiate designing a data warehouse and an OLAP cube.

Or

- (b) What are extraction and transformation tools? Explain briefly.
12. (a) Write a note on subset selection in attributes for data reduction.

Or

- (b) What are the activities in data preprocessing? Explain.
13. (a) Illustrate about Apriori algorithm.

Or

- (b) Describe the merits of FP – Tree growth algorithm.
14. (a) Explain about Hierarchical clustering.

Or

- (b) Write short notes on genetic algorithm.
15. (a) What is web content mining? Explain.

Or

- (b) Enumerate the features of rapid minor data mining tool.

SECTION C — ( $3 \times 10 = 30$  marks)

Answer any THREE questions.

16. Discuss about the role of data warehousing in government organizations.
  17. Explain different data mining tasks for knowledge discovery.
  18. Explain the following: (a) Pincher search algorithm (b) Applications of association analysis
  19. What is the goal of clustering? How does partitioning around medoids algorithm achieve this goal?
  20. Discuss about Spatial data mining.
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**D-7333**

**Sub. Code**

**34142**

DISTANCE EDUCATION

M.Sc. (Computer Science) DEGREE EXAMINATION

MAY 2021 EXAMINATION

&

MAY 2020 ARREAR EXAMINATION

Fourth Semester

MOBILE APPLICATION DEVELOPMENT

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours

Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. What do you mean by Mobile Ecosystem?
2. List down the types of operators for mobile applications.
3. What are the various categories of mobile applications?
4. What do you mean by informative Apps?
5. Define prototyping.
6. What are the elements for the mobile application design?
7. Define run time environment.
8. What are the various languages used for the MIDlet programming?



9. Define emulator.
10. What do you mean by framework for android application?

SECTION B — (5 × 5 = 25 marks)

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

11. (a) What are the operators and networks for mobile ecosystem?

Or

- (b) Classify the application frameworks for designing the mobile apps.

12. (a) Explain briefly about the mobile websites.

Or

- (b) Write short notes on enterprise applications.

13. (a) What are the elements used for mobile application design? Explain in brief.

Or

- (b) Describe in detail about Sitemaps.

14. (a) Summarize the small computing device requirements.

Or

- (b) Elucidate in detail about the J2ME Wireless Toolkit.

15. (a) Describe in brief about the Google android application.

Or

- (b) Summarize the android development environment.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. What are the application frameworks? Explain in detail their services and uses.
  17. Elucidate in detail on native applications with examples.
  18. Describe various designing tools used for different screen and devices.
  19. Explain in detail with proper illustration, the working of J2ME architecture and development environment.
  20. Explain the SDK framework for android application development.
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**D-7334**

**Sub. Code**

**34143**

DISTANCE EDUCATION

M.Sc. (Computer Science) DEGREE EXAMINATION

MAY 2021 EXAMINATION

&

MAY 2020 ARREAR EXAMINATION

Fourth Semester

ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEM

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours

Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. What are forward and backward reasoning?
2. Define Genetic Algorithm
3. What are the Inference Rules?
4. What do you mean by pattern recognition?
5. Define expert systems.
6. List down the applications of expert systems.
7. How path selection is done in State Space Search?
8. What is Graph planning?
9. Define Quantization.
10. Write the purpose of segmentation.

SECTION B — (5 × 5 = 25 marks)

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

11. (a) Write short notes on Search Strategies.

Or

- (b) Describe about the application areas of AI.

12. (a) Explain briefly about the Syntax and Semantics.

Or

- (b) What is a Bayesian Network? Explain.

13. (a) How the mean end analysis is done in Robotic problem? Explain briefly.

Or

- (b) Describe in detail the rule based system architecture with neat sketch.

14. (a) Summarize the phases in Task planning.

Or

- (b) Elucidate in detail about the Obstacle Avoidance.

15. (a) Describe the functions in the vision system.

Or

- (b) Write short notes on Segmentation techniques.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain in detail about the operators and parameters in Genetic Algorithm with applications.
  17. Elucidate in detail on knowledge engineering process with suitable application example.
  18. Describe in detail about expert system shell.
  19. Explain in detail with proper illustration, Robot problem solving as a production system.
  20. Discuss Robotic applications of machine vision and training systems.
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