SHRIMATI INDIRA GANDHI COLLEGE

(Nationally Accredited at 'A' Grade (3rd Cycle) By NAAC)

Tiruchirappalli – 2.

QUESTION BANK FOR

M.Sc COMPUTER SCIENCE

2017-2018

DEPARTMENT OF COMPUTER SCIENCE

CONTENT

S.NO. 6216 **P 16 CS 13**

(For candidates admitted from 2016 – 2017 onwards)

M.Sc DEGREE EXAMINATION APRIL 2017.

Computer Science

DESIGN ANALYSIS OF ALGORITHMS

Time : Three hours **Maximum : 75 marks**

SECTION – A (10X2=20)

ANSWER ALL THE QUESTIONS.

1.What is recursive algorithms? Give an example?

2.Why do we need to analysis algorithms?

3.Define divide and conquer method.Ω

4.Differnce between merge sort and quick sort?

5.Write short note on knapsack problem.

6.Mention the names of algorithms used to find the Minimum cost for tree.

7.What are the drawbacks of dynamic programming?

8.What are the conditions of flow shop scheduling?

9.List names of the searching techniques commonly used in Branch-and-Bound method?

10.What is the objectives of 8-Queen's problem?

SECTION – B (5X5=25)

ANSWER THE FOLLOWING QUESTIONS.

11. (a) Write an algorithm to find the maximum number of n given numbers..

(OR)

(b) Write an algorithms for add and delete function of array representations of stack.

12. (a) Write the merge sort algorithm to sort the Following numbers:25, 10, 5, 8, 15, 30, 6.

(OR)

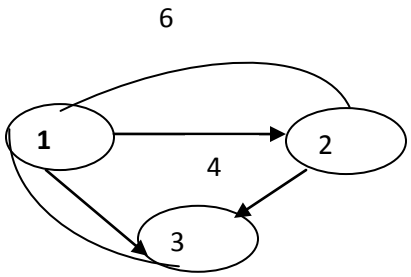
(b)Explain in detail about Strassen's matrix Multiplication with an example.

13. (a)Explain in detail about Prim's algorithm with Example.

(OR)

(bExplain optimal storage on tapes in greedy Method?

14. (a) Find the All-pairs shortest path



1

2

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(OR)

(b) Explain BFS algorithm with example.

15. (a) Compare backtracking and branch bound

Techniques.

(OR)

(b) Explain Hamiltoflian cycle in an undirected graph.

SECTION – C (3X10=30)

ANSWER ANY THREE QUESTIONS.

16.Give elaborate discussion on asymptotic Notations of Big oh(O),omega(Ω)and theta(θ) with suitable example.

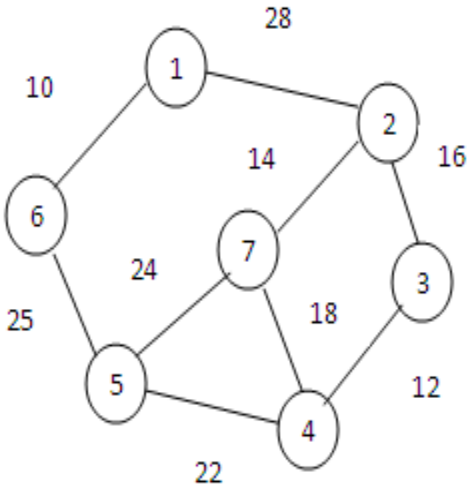
17. Explain the following

a) List the characteristic of binary search. (4)

b) What is quick sort? Explain in detail with a

suitable example (6)

18. Find the minimum cost spanning tree using Prims and Kruskal's algorithm



19. Discuss elaborately about the optimal binary Search tree with neat diagram.

20. Expalin the following

a)What are the requirements that are needed for performing Backtracking?

b)State Sum of Subsets problem.

S.NO. 2190 **P 16 CS 13**

(For candidates admitted from 2016 – 2017 onwards)

M.Sc DEGREE EXAMINATION NOVEMBER 2016.

Computer Science

DESIGN AND ANALYSIS OF ALGORITHMS

Time : Three hours **Maximum : 75 marks**

PART – A (10X2=20)

ANSWER THE FOLLOWING QUESTIONS.

1. What is the use of asymptos notation?
2. What do you mean by dynamic programming?
3. What is average case analysis?
4. Define optimal binary search tree.
5. List out the draw backs of binary search algorithm.
6. What do you mean by space tree?
7. What is traveling salesperson problem?
8. What do you mean by multi stage graph?
9. State the general back tracking method.
10. What do you mean by state space tree.

PART– B (5X5=25)

ANSWER THE FOLLOWING QUESTIONS.

11. (a) Explain in details about the steps in analyzing and coding an algorithm.

(OR)

(b) Explain various asymptotic notations used in algorithm design.

12. (a) Develop a pseudo code for divide and conquer algorithm for two sorted arrays in to a single sorted one.

(OR)

(b) Sort the following set of elements using merge sort:

12,24,8,71,4,23,6,89,56

13. (a) Explain DFS in this example.

(OR)

(b) Write a short note about multistage graph.

14. (a) Using backtracking technique solve the following instance of the subset sum problems s=(1,3,4,5) and d=11.

(OR)

(b) Explain the algorithm using backtracking technique, to solve Hamilton problem.

15. (a) Write notes on deterministic algorithm.

(OR)

(b) Write a short notes about traveling sales man problem.

PART – C (3X10=30)

ANSWER ANY THREE QUESTIONS.

16. Explain Kruskal algorithm.

17. Explain eight queens problem in this example.

18. Describe all pairs shortest path problem and write procedure to compute lengths of shortest paths.

19. Explain NP hard and NP completeness with example.

20. Explain how the branch and bound techniques is used to solve I/O Knapsack.

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S.NO. 6217 **P 16 CS14**

(For candidates admitted from 2016 – 2017 onwards)

M.Sc DEGREE EXAMINATION APRIL 2017.

Computer Science

DISTRIBUTED OPERATING SYSTEMS

Time : Three hours **Maximum : 75 marks**

SECTION – A (10X2=20)

ANSWER ALL THE QUESTIONS.

1. List down the different operating systems.
2. What is meant by LAN and WAN?
3. List out the desirable features of a good message passing system.
4. Give a short note on multidatagram messages.
5. What is meant by DSM?
6. List down the necessary condition for dead lock to occur.
7. Write down the characteristics of distributed file system.
8. Define File replication.
9. Write a short note on advantage of computer security.
10. What is meant by distributed access control?

SECTION – B (5X5=25)

ANSWER THE FOLLOWING QUESTIONS.

11. (a) Write a note on Evolution of distributed computing system?

(OR)

(b) Discuss about Internet working?

12. (a) Briefly discuss about Message passing..

(OR)

(b) Explain about Group communication.

13. (a) How will you handle failures in disturbuted system.

(OR)

(b) Discuss about clock synchronization.

14. (a) Explain file sharing semantics.

(OR)

(b) What are the different components of file service?Explain each on detail.

15. (a) State the advantages and disadvantages of cryptography.

(OR)

(b) Give a brief account on Digital signature.

SECTION – C (3X10=30)

ANSWER ANY THREE QUESTIONS.

16. Why are Disturbuted Computing System gaining popularity?

17. Explain with example how to keep track of lost and out of sequence packets in a multidatagram message transmission.

18. Explain about Design and Implementation Issues of Distributed Shared memory.

19. Give short note on file accessing model and Fault tolerance.

20. Write the paradigm of authentication protocols.

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S.NO. 2188 **P 16 CS 11**

(For candidates admitted from 2016 – 2017 onwards)

M.Sc DEGREE EXAMINATION NOVEMBER 2016.

Computer Science

MATHEMATICAL FOUNDATION FOR

COMPUTER SCIENCE

Time : Three hours **Maximum : 75 marks**

SECTION – A (10X2=20)

ANSWER ALL THE QUESTIONS.

1. Show that the prepositions p → q and ┐ p v q are logically equivalent.
2. Given an indirect proof of theorem if $3n+2$ is odd then n is odd.
3. Define conjunction.
4. State Pigeon hole principle.
5. Define Hamming tree of a graph.
6. Define Hamming distance.
7. State any two application of chisquare test.
8. Define sequencing and scheduling.
9. Define complete graph and given an example.
10. Define partial ordering.

SECTION – B (5X5=25)

ANSWER THE FOLLOWING QUESTIONS.

11. (a) Using indirect method of proof,derive p → ┐s from the peremises p →(q v r), q →┐ p,s →┐ r and p.

(OR)

(b) Prove that √2 is irrational by giving a proof using contradiction..

12. (a)Show that $\forall x\big(P(x)\text{vQ(x)}\big) => \big(\forall xp(x)\big)\text{v}(\exists \times Q(x))$ by indirect method of proof.

(OR)

(b) Prove that a code C $\subset F_q^n$ contains no more thatq^{n+1} –d(*C)* elements.

13. (a)Write down a generator matrix for Hom(3,2)in standard form.

(OR)

(b) Write a short note about ceaser cipher.

14. (a)Prove that the maximum number of edges in a simple disconnected graph *G* with n vertices and *K* components is

.

$$\frac{(n-K)(n-K+1)}{2}$$

(OR)

(bA connected graph *G* is Eulerain if and only if every vertex of *G* is even degree.

15. (a) (i)Write the formula for chisquare test of single standard deviation .

(ii)What is irregular varation?

(OR)

(b)What are the assumptions made by the regression model in estimating the parameters and insufficance testing?

SECTION – C (3X10=30)

ANSWER ANY THREE QUESTIONS.

16. Prove that$[(\ p\ v\ q\ )\Lambda(\ \ p \rightarrow r)\ \Lambda(\ \ q \rightarrow r)] \rightarrow r$ is a tautology.

17.Prove that if a graph *G* has not more than two vertices of odd degree, then there can be Euler path in *G*.

.

18.Write about error detecting capacity of an encoding.

.19. Estimate the Pearson correlation coefficient by using the following data.

Job:	1	2	3	4	5	6
System 1:	4.4	5.0	4.9	5.3	13.5	12.0
System 2:	3.9	5.1	5.0	4.9	13.3	13.2

20.Below you are given the values obtained from a random sample of 4 observations taken from an infinite population?

32,34,35,39

(a) Find a point estimate for M in this an unbiased estimate of M explain.

(b) Find a poiunt estimate for σ^2 .I this unbiased estimate of σ^2 explain.

(c) Find a point estimate for σ.

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S.NO. 2189 **P 16 CS 12**

(For candidates admitted from 2016 – 2017 onwards)

M.Sc DEGREE EXAMINATION ,NOVEMBER 2016.

Computer Science

WEB TECHNOLOGIES

Time : Three hours **Maximum : 75 marks**

SECTION – A (10X2=20)

ANSWER ALL THE QUESTIONS.

1. What is the difference between TCP and UDP.
2. Define the Get( ) and Post( ) method.
3. Write a JavaScript function to display hello.
4. How do declare the HTML forms in the web page?
5. Explain the role of XML Name spaces.
6. What is Document Type Declaration(DTD)?
7. What are advantages of using JSP?
8. What are the Javabeans properties,explain it?
9. Justify the need of ASP.
10. How to connect the SQL server database with Asp.net?

SECTION – B (5X5=25)

ANSWER THE FOLLOWING QUESTIONS.

11. (a) Explain about the tables in HTML.

(OR)

(b) Describe the client/server architecture of Internet.

12. (a) Explain about dialog box with the example in JavaScript.

(OR)

(b) What is built in objects explain it?

13. (a) Discuss about XLS technologies with example.

(OR)

(b Explain the structure of Document Type Definition(DTD).

14. (a) What is page directive explain?

(OR)

(b) Write about JSP comment styles.

15. (a) Explain about the components in ASP.

.

(OR)

(b) Explain the SQL statement in connection objects.

SECTION – C (3X10=30)

ANSWER ANY THREE QUESTIONS.

16.Describe about frames in HTML with example.

17. Explain about form objects methods in Java Script.

18.Write short note on XLINK and XPATH.

19.Explain the error handling in JSP.

20.Write a program to search a record and update using MS-ACCESS.

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S.NO. 6224 **P 16 CSE 2B**

(For candidates admitted from 2016 – 2017 onwards)

M.Sc DEGREE EXAMINATION APRIL 2017.

Computer Science – Elective

ARTIFICIAL INTELLIGENCE

Time : Three hours **Maximum : 75 marks**

SECTION – A (10X2=20)

ANSWER ALL THE QUESTIONS.

1. Define Artificial Intelligence.
2. List the components of the production system.
3. Name two types of entities in AI Programs.
4. Define weak method.
5. Represent "Everyone is kind to someone" in predicate login.
6. How resolution produces proof.
7. Define Horn Clause.
8. List three approaches to the problem of conflict resolution to a production system.
9. List any two problems that expert systems face.
10. Define perplexity.

SECTION – B (5X5=25)

ANSWER THE FOLLOWING QUESTIONS.

11. (a) Discuss the four things that you need to solve a proble.

(OR)

(b) Describe the advantages of both breadth first and depth first search..

12. (a) Discuss the properties that a system should posses in representing knowledge.

(OR)

(b) Write and explain Generate and test algorithm.

13. (a) Write short note on representing instance and is a relationship.

(OR)

(b) Describe propositional logic.

14. (a) Distinguish between procedural and declarative knowledge.

(OR)

(b) Write about matching.

15. (a) Explain the implications difference between real and simulated problems.

(OR)

(b) Write short note on speech recognition.

SECTION – C (3X10=30)

ANSWER ANY THREE QUESTIONS.

16. Discuss in detail about the problem characteristics.

17. Write and explain A* algorithm.

18. Explain the algorithm for converting wff to clause form.

19. Compare Forward reasoning with backward reasoning.

20. Explain Min-Max algorithm.

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S.NO. 6219 **P 16 CS 22**

(For candidates admitted from 2016 – 2017 onwards)

M.Sc DEGREE EXAMINATION APRIL 2017.

Computer Science

DISTRIBUTED TECHNOLOGIES

Time : Three hours **Maximum : 75 marks**

SECTION – A (10X2=20)

ANSWER ALL THE QUESTIONS.

1. Give any three examples in Distributed System.
2. Mention some of the disadvantage of Distributed Computing.
3. What is a Dataset in ADO.Net?
4. What is the difference between Grid view and Data Grid?
5. Abbreviate GIF, PNG, BMP and JPEG.
6. What is Menu Control?
7. What is Cookies?
8. List out the various events in Application state.
9. What is a web service?
10. Define UDDI.

SECTION – B (5X5=25)

ANSWER THE FOLLOWING QUESTIONS.

11. (a) Explain the goals and benefits of Distributed System.

(OR)

(b) What are the challenges involved in establishing remote Connection?

12. (a) Explain Form View control.

(OR)

(b). Write about the role of ADO.Net in Distributed Applications.

13. (a)Give a brief description on HTML server controls.

(OR)

(b) What are the modes in web parts?

14. (a) Explain the securities in ASP Net.

(OR)

(b) What are the various types of cookies?

15. (a) Explain the role of WSDL in web services.

(OR)

(b)What are the various steps in accessing a web service through ASP.Net application?Explain.

SECTION – C (3X10=30)

ANSWER ANY THREE QUESTIONS.

16. Explain in detail about Distributed computing using.Net remoting.

17.Discuss about ADO.Net components with diagrammatric representation.

18. Give an overview on ASP.Net architecture.

19. What are the various types of state management?Explain.

20. Explain the building blocks of XML.

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S.NO. 6220 **P 16 CSE 1A**

(For candidates admitted from 2016 – 2017 onwards)

M.Sc DEGREE EXAMINATION APRIL 2017.

Computer Science – Elective

MOBILE COMMUNICATIONS

Time : Three hours **Maximum : 75 marks**

SECTION – A (10X2=20)

ANSWER ALL THE QUESTIONS.

1.What is multi-path propagation?

2. Define short term fading.

3. How Forward Error Correction increase the quality a transmission?

4. Mention any two security services offered by GSM.

5. Define SIFS.

6. How mobility to restricted using WLANs?

7. Define MANET.

8. Write the working principle of dynamic source routing protocol.

9. List the classes of transaction service of WTP.

10. Mention the role of transaction layer in WAP.

SECTION – B (5X5=25)

ANSWER THE FOLLOWING QUESTIONS.

11. (a) Explain frequency hopping spread spectrum with neat sketch.

(OR)

(b) Compare and contrast SDMA with CDMA.

12. (a) Describe GSM architecture with neat sketch.

(OR)

(b) Why handover occurs in satellite systems?What are the types Of handover in satellite systems?

13. (a) Explain the role of MAC management in IEEE 802.11.

(OR)

(b) Briefly explain the Bluetooth architecture with neat sketch.

14. (a) Compare and contrast cellular and ad-hoc networks.

(OR)

(b) Discuss on dynamic sequence distance vector routing protocol.

15. (a) What is WAE?Explain its logical model.

(OR)

(b) Write a note on wireless datagram protocol.

SECTION – C (3X10=30)

ANSWER ANY THREE QUESTIONS.

16. What is multiplexing?Explain the various types of multiplexing inWireless communications. Identify and state the reason which Multiplexing scheme is flexible for mobile communications.

17. Explain the different types of handover in GSM and security services of GSM.

18. Describe the IEEE 802.11 protocol architecture with suitable Illustrations.

19. Write a detailed note on the following with suitable illustrations:

(a) Cluster-Head Gateway Switch Routing Protocol(CGSR)

(b) Fish_Eye State Routing Protocol(FSR)

20. Discuss in detail on WAP architecture with neat sketch.

S.NO. 6218 **P 16 IT 13/P 16 CS 21**

(For candidates admitted from 2016 – 2017 onwards)

M.Sc DEGREE EXAMINATION APRIL 2017.

Computer Science – Information Technology

OOAD AND UML

Time : Three hours **Maximum : 75 marks**

SECTION – A (10X2=20)

ANSWER ALL THE QUESTIONS.

1. What is a object?
2. Define Inheritance.
3. What is a FrameWork?
4. Define Pattern Mininig.
5. Write down the steps involved in CRC Process.
6. What is Classification?
7. Define DDL.
8. State the goal of Object Oriented Desing.
9. What is Generalization?
10. Define Attributes.

SECTION – B (5X5=25)

ANSWER THE FOLLOWING QUESTIONS.

11. (a) Describe briefly about the Software Development Process.

(OR)

(b) Write short notes on Consumer-Producer Association

12. (a) Discuss about the Frameworks in detail.

(OR)

(b) Explain about the Booch Methodology.

13. (a) Write a short note on Classification Theory.

(OR)

(b) List out the Guidelines for Developing Effective Documentation.

14. (a) Write down the Rules for User Interface.

(OR)

(b) Explain about the Object-Oriented Design Axiom.

15. (a) Write about four kinds of Things in UML.

(OR)

(b) Write a brief note on Collaboration.

SECTION – C (3X10=30)

ANSWER ANY THREE QUESTIONS.

16. Write about the Object Oriented Systems Development based on a Use-Case Driven Approach.

17. Explain the Phases of Unified Process in detail.

18. Illustrate about Use Case Model with a suitable example.

19. Discuss about any five Corollaries in the Object-Oriented Design Process and Design Axioms.

20. Explain the types of UML Diagrams with example.

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