32421/D 210

Reg. No. | | | | | | | | |

Fourth Semester B.C.A.3 Degree Examination, May/June 2017
DESIGN AND ANALYSIS OF ALGORITHMS
(Regular) (2014-2015 Onwards)

Time : 3 Hours Max. Marks : 80

Instructions : *i) Write answer to the particular Section problems together.*
ii) ***Draw*** *diagrams* ***wherever*** *necessary.*

PART – A

1. Solve **any ten** questions : **(10×2=20)**

a) As per computational theory, identify the distinguishing factor between algorithm and program.

b) What is the importance of expressing an algorithm using pseudo code ?

c) What is debugging ?

d) Define algorithm.

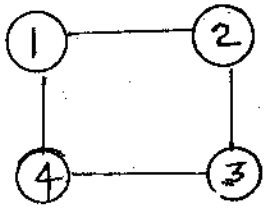
e) What is the precondition for list of numbers, if binary search is to be carried out ?

f) Define feasible solution and optimal solution.

g) Differentiate between Greedy method and dynamic programming.

h) What are the two basic types of graph ? Draw their figure.

i) For an undirected graph shown below, draw two spanning trees.



j) What is meant by tree traversal ? Draw tree.

k) Define implicit and explicit constraints.

l) What is m-colorability decision problem ?

P.T.O.

PART – B

Solve **any four** questions : **(4×5=20)**

2. Explain the four study areas of algorithm.

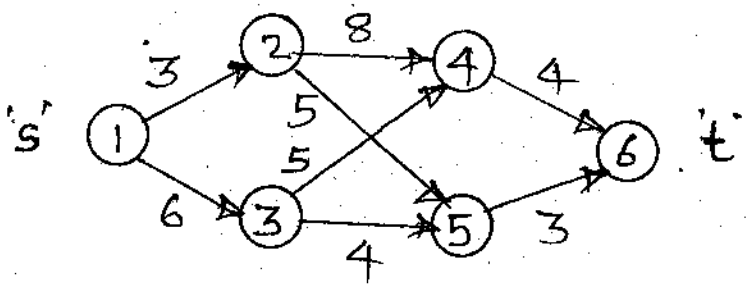
3. What is Strassen's matrix multiplication ? Solve A × B, where, matrix

$A = \begin{bmatrix} 1 & 2 \\ 5 & 6 \end{bmatrix}$ $B = \begin{bmatrix} 8 & 7 \\ 1 & 2 \end{bmatrix}$ using Strassen method.

4. What is the concept of optimal storage on tapes ? For n = 3 and $(l_1, l_2, l_3) = (10, 20, 15)$. Show all possible ordering and their respective 'd' values. Identify optimal ordering.

5. Draw a tree and explain three important traversal techniques.

6. What is multistage graph ? Find the minimum cost and path from source 's' to the sink 't' using forward approach.



7. Write short note on **any one** :
   i) 4 × 4 Queen's problem.
   ii) Hamiltonian cycle.

PART – C

Solve **any four full** questions : **(4×10=40)**

8. a) Discuss in brief factors contributing to
      i) Time efficiency ii) Space efficiency. **5**
   b) Explain the characteristics of a good algorithm. **5**

9. a) Draw a diagram and explain divide and conquer strategy to solve a problem. **5**
   b) Distinguish between linear search and binary search. **5**

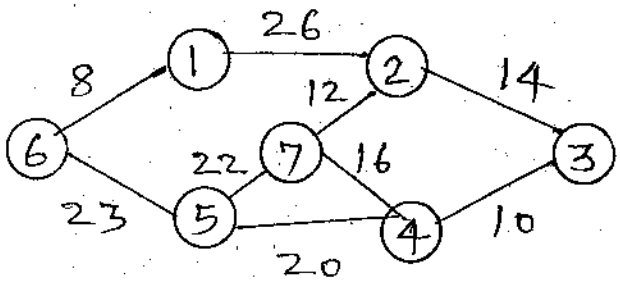
10. a) Identify differences and similarities between Divide and Conquer strategy and dynamic programming. **5**

    b) Explain the flow shop scheduling problem w.r.t.

    i) Preemptive scheduling.

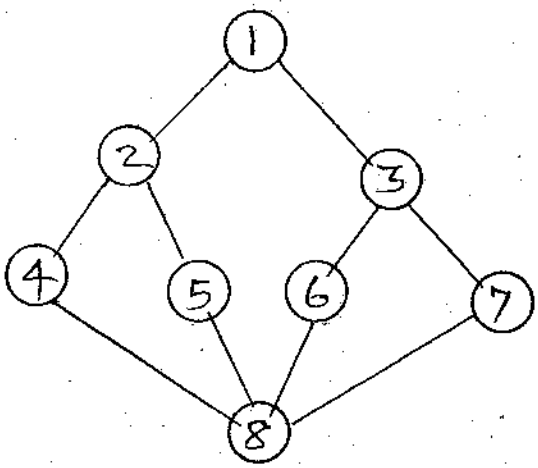
    ii) Non-preemptive scheduling. **5**

11. a) Find the minimum cost spanning free for given graph using prime algorithm. **5**



    b) Explain subset paradigm and ordering paradigm with one example each. **5**

12. a) Define graph. For an undirected graph given below, show adjacency list. **5**



    b) Write short note on **any one** : **5**

    i) Sum of subset problem.

    ii) Graph search and traversal techniques.

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IV Semester B.C.A.3 Examination, May/June 2017
(2014 – 2015 Onwards)
IT INFRASTRUCTURE AND MANAGEMENT
(Regular)

Phalguni Gupta, Surya Prakash and Umarani Jayaraman

Time : 3 Hours | Max. Marks : 80

Instruction : ***All*** *Sections are* ***compulsory.***

SECTION – A

1. Answer **any ten** of the following : **(10×2=20)**
   a) List out tasks of IT system management.
   b) Define service support system.
   c) What are the functions of configuration management ?
   d) Define hybrid model.
   e) What is difference hacker and cracker ?
   f) What is the formula for Return On Investment (ROI) ?
   g) What is the meaning of intellectual property ?
   h) Define incident management.
   i) Define MTTR.
   j) What is BARE MACHINE RECOVERY ?
   k) Define security threats.
   l) Define cryptography.

SECTION – B

Answer **any four** of the following : **(4×5=20)**

2. Discuss the difference between service level and operational level agreement.
3. What is Capacity Management ? What are the advantages of Capacity Management ?
4. Explain proactive and reactive management.
5. Explain firewall and routers. What are their usage ?
6. Discuss various issues involved in internet ethics.

P.T.O.

SECTION – C

Answer **any four** of the following : **(4×10=40)**

7. Explain all the parts of IT Service Management Process.
8. List out the components of the Financial Management Process and explain them.
9. Explain disaster recovery with their classification and recovery plans.
10. Discuss ISO/OSI reference model. What are the main goals of ISO/OSI seven layers reference models.
11. Describe the following terms :
    a) Hacking
    b) Cyber stalking
    c) Software piracy
    d) Cyber terrorism.

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IV Semester B.B.A.2 Examination, May/June 2017
(Repeaters) (2011-2012 Onwards)
RESEARCH METHODS

Time : 3 Hours Max. Marks : 80

Instructions: *1) Read the questions **carefully** and answer to the point.*
*2) Section **C** is **compulsory**.*
*3) Give examples, **wherever** it is necessary.*

SECTION – A

Answer **any ten** questions : **(10×2=20)**

1. What do you mean by applied research and fundamental research ?
2. Write any two objectives of research.
3. What do you mean by pilot survey ?
4. What do you mean by research design ?
5. What do you mean by non sampling errors ?
6. Under what circumstances would you recommend a cluster sample ?
7. Define secondary data.
8. What do you mean by schedules in data collection ?
9. What is "Data cleaning" ?
10. What do you mean by interpretation ?
11. What do you mean by inferential analysis ?
12. What is sampling frame ?

P.T.O.

SECTION – B

Answer **any five** questions, **each** carries **8** marks. **(5×8=40)**

13. Explain the different steps involved in research process.

14. Distinguish between research methods and research methodology.

15. Describe fully the techniques of defining a research problem.

16. Briefly explain the main steps of sampling design.

17. Write short notes on :
    a) Depth interviews b) Observation

18. From the data given below, calculate :
    a) Mean
    b) Standard deviation
    c) Coefficient of variation

    Values : 8, 10, 14, 24, 26.

19. Explain briefly the format/structure of a research report.

SECTION – C

Compulsory : **(8+12=20)**

20. All over India, the "Cable Operators" are forming a major threats in the form of DTH (Direct To Home) operators, so they have decided to conduct a survey to determine the satisfaction levels of existing customer and to what extent there is a shift from cable connection to DTH connection.
    a) Suggest a suitable research design for the above research.
    b) Draft a suitable questionnaire for the same.

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IV Semester B.C.A.3 Examination, May/June 2017
(Regular)
(2014-2015 Onwards)
VB.NET
Theory

Time : 3 Hours Max. Marks : 80

Instructions : *1) **All** Parts are **compulsory**.*
2) Draw property chart and screen design for programs.
*3) Draw **neat** diagrams **wherever** necessary.*

PART – A

Answer **any ten** questions of the following : **(10×2=20)**

1. a) What is .NET Framework ?
   b) Expand CLR and MSIL.
   c) What is event driven programming language ?
   d) List any 4 properties of label control.
   e) Mention any 4 methods of form.
   f) Differentiate between listbox and combobox.
   g) Mention symbols of logical operators used in VB.NET.
   h) Define dynamic array with syntax.
   i) What is dialogbox ?
   j) Define MDI form.
   k) List any four string functions used in VB.NET.
   l) Expand ADO.NET and SQL.

P.T.O.

PART – B

Answer **any four** questions of the following : **(4×5=20)**

2. Explain any five design features of .NET Framework.
3. Define control and explain the following controls :
   a) TextBox b) Label c) PictureBox d) Button
4. Write a program to create a login form and validate it using MsgBox.
5. Define looping. Explain the looping statements with syntax.
6. Explain MsgBox and InputBox function with example.
7. Design an application which calculates EMI of a loan using functions.

PART – C

Answer **any four** questions of the following : **(4×10=40)**

8. What is IDE ? Explain all the components of IDE with diagram.
9. a) Explain any five properties of form.
   b) Explain any five events of button. **(5+5)**
10. a) Explain any five data types used in VB.NET.
    b) Define exception. Explain exception handling statements used in VB.NET with syntax. **(5+5)**
11. Design an application to create a MDI form having a menu with options-programs and exit. The program menu should have sub menu items that calls separate child forms such as Fibonacci and Factorial.
12. Write the uses of the following controls :
    a) Color dialog control.
    b) Font dialog control.
    c) Tool strip.
    d) Timer control.
    e) Scrollbar.

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IV Semester B.C.A.3 Examination, May/June 2017
(Regular)
(2014-2015 Onwards)
VB.NET
Theory

Time : 3 Hours Max. Marks : 80

Instructions : *1)* ***All*** *Parts are* ***compulsory****.*
2) Draw property chart and screen design for programs.
3) Draw ***neat*** *diagrams* ***wherever*** *necessary.*

PART – A

Answer **any ten** questions of the following : **(10×2=20)**

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   h) Define dynamic array with syntax.
   i) What is dialogbox ?
   j) Define MDI form.
   k) List any four string functions used in VB.NET.
   l) Expand ADO.NET and SQL.

P.T.O.

PART – B

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5. Define looping. Explain the looping statements with syntax.
6. Explain MsgBox and InputBox function with example.
7. Design an application which calculates EMI of a loan using functions.

PART – C

Answer **any four** questions of the following : **(4×10=40)**

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9. a) Explain any five properties of form.
   b) Explain any five events of button. **(5+5)**
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11. Design an application to create a MDI form having a menu with options-programs and exit. The program menu should have sub menu items that calls separate child forms such as Fibonacci and Factorial.
12. Write the uses of the following controls :
    a) Color dialog control.
    b) Font dialog control.
    c) Tool strip.
    d) Timer control.
    e) Scrollbar.

32424/D 240

Reg. No. | | | | | | | | |

Fourth Semester B.C.A. 3 Degree Examination, May/June 2017
(2014-2015 Onwards) (Regular)
SOFTWARE ENGINEERING

Time : 3 Hours Max. Marks : 80

Instructions : *1)* ***All*** *Sections are* ***compulsory.***
2) Draw ***neat*** *diagrams* ***wherever*** *necessary.*

SECTION – A

1. Answer **any ten full** questions : **(10×2=20)**

a) What do you mean by Software Engineering ?

b) What are Generic and Customized Software Products ?

c) What is Prototyping ?

d) What are User and Software Requirements ?

e) What is Interaction Modeling ? Mention two diagrams used in Interaction Modeling.

f) What is Data Dictionary ? Mention notations used in Data Dictionary.

g) Mention architectural views.

h) What are the three implementation issues in design ?

i) What are Redundancy and Diversity ?

j) What do you mean by system survivability ?

k) What are the four major tasks of Risk Management Process ?

l) What is Project Scheduling ?

P.T.O.

SECTION – B

Answer **any four full** questions : **(4×5=20)**

2. Explain Reuse-Oriented Software Engineering.
3. What are the stages in process of requirement elicitation and analysis ? Explain with a neat diagram.
4. With an example, explain Use-Case diagram.
5. What do you mean by client-server architecture ? Explain with a neat diagram.
6. Explain N-version programming with triple modular redundancy.
7. Write a short note on Team-Work.

SECTION – C

Answer **any four full** questions : **(4×10=40)**

8. How does a software developed using spiral model ? Explain.
9. Explain :
   a) Requirement Engineering Process.
   b) Context Model.
10. Explain Repository Architecture and Layered Architecture.
11. Write the design guidelines for secure system engineering.
12. Write short notes on :
    a) Software Engineering Ethics.
    b) Open Source Development.