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**SARDAR PATEL UNIVERSITY**  
M. Sc. (IT) INTEGRATED EXAMINATION, VII SEM

SC

Date : 2<sup>nd</sup> NOV 2017, Thursday  
Session : Morning  
Course No : PS07CIIT01

Time : 02:00pm To 05:00pm  
Sub: System Software  
Total marks : 70

Q – 1 Select an appropriate option [08]

- i) \_\_\_\_\_ part of compilation breaks up the source program into essential pieces.  
a) Synthesis                      b) Analysis                      c) Execution                      d) None of these
- ii) \_\_\_\_\_ attempts to discover potential bugs without running the program.  
a) Pretty printer                      b) Structure editors                      c) Static checker                      d) a & b
- iii) \_\_\_\_\_ data structure is used in synthesis phase.  
a) Symbol Table                      b) DFD                      c) Name Table                      d) All of above
- iv) Mnemonic has \_\_\_\_\_ primary fields.  
a) Mnemonic and opcode                      b) Name and Address  
c) Mnemonic and name                      d) Name and opcode
- v) The \_\_\_\_\_ of a program is the address of the instruction from which its execution must begin.  
a) Execution Address                      b) Address                      c) Execution start address                      d) All
- vi) \_\_\_\_\_ is the process of binding an external reference to the correct link time address.  
a) Translation                      b) Linking                      c) Loading                      d) None of above
- vii) \_\_\_\_\_ is responsible for interpreting user command and implementing them by invoking different modules of the application code.  
a) Dialog Manager                      b) Debug Manager                      c) Presentation manager                      d) All
- viii) \_\_\_\_\_ helps in obtaining information for localization of errors.  
a) Debug Monitors                      b) Profile monitor                      c) Editors                      d) All of above

Q – 2 Answer the following Questions (Any SEVEN) [14]

- i) What do you mean by Compiler
- ii) Define : Application Domain & Execution Domain.
- iii) Define system software and write types of software
- iv) What is Machine instructions format?
- v) What is Condition code? How it is tested?
- vi) Differentiate between linking and loading
- vii) Explain address sensitive program
- viii) Write difference between Hypertext, Hyper card and Manually.
- ix) Explain the factor on which efficiency of programs depends.

Q – 3 a) What is language processing? Explain spectrum of language processor. [06]  
b) List the phases of a compiler and explain symbol table management, error detection reporting. [06]

**OR**

Q – 3 b) Give the schematic of interpretation of HLL program and execution of a machine language program by the CPU. [06]

- Q-4 (a) Explain features provided by Assembly language programming in details [06]  
(b) What is assembly language? What kind of statements are present in an assembly language program? Discuss. Also highlight the advantages of assembly language. [06]
- OR**
- Q-4 (b) Explain design specification of an assembler. [06]
- Q-5 a) Explain different editors in detail. [06]  
b) Explain Translated, Linked and Load time address. [06]
- OR**
- Q-5 b) Discuss various steps for execution of program written in a programming language. [06]
- Q-6 a) Define software tools. Discuss three software tools for programming development [06]  
b) Briefly discuss the principles of command dialog design. [06]
- OR**
- Q-6 b) Explain Debug Monitor and User Interfaces in detail [06]

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[55]

SARDAR PATEL UNIVERSITY  
M.Sc.IT(Integrated) Examination, 7<sup>th</sup> Semester  
Monday, 6<sup>h</sup> November, 2017.  
Time: 2:00 P.M to 05:00 P.M  
Subject Code: PS07CIIT02  
Subject: Analysis and Design of Algorithm

SC

Total Marks: 70  
[08]

**Q.1 Multiple Choice Questions**

1. In Greedy Method the objective function is maximized or minimized the feasible solution is
  - a. Maximized.
  - b. Optimal
  - c. Minimized
  - d. Lower
2. If we do not pick that object to fill into a knapsack then its value is
  - a. Two.
  - b. Zero.
  - c. One.
  - d. None of these.
3. TSP stands for
  - a. Transporation Sales Problem
  - b. Travelling Salesman roblem
  - c. Travelling Sales Problem
  - d. Transporation Salesman Problem
4. We need \_\_\_\_\_ unti of time to Process each Job.
  - a. One
  - b. Three
  - c. Two
  - d. Four
5. The forward Approch Method is also Known as
  - a. Forward Reasoning.
  - b. Dynamic Programmig
  - c. Backward Reasoning
  - d. Optimal Reasoning
6. Leaf node is known as \_\_\_\_\_ node.
  - a. Terminal.
  - b. Root.
  - c. Parent.
  - d. Non-terminal.
7. A binary tree has at most \_\_\_\_\_ child.
  - a. Two.
  - b. One.
  - c. Three.
  - d. None of these.
8. In Binary Search Circular Node Known as
  - a. Extrenal Node .
  - b. Square Node
  - c. Internal Node
  - d. Round Node

**Q.2 Short Questions (Any Seven)**

[14]

1. What is Directed Graph ,Adjacent Node,Cycle and Loop.
2. List Asymptotic Noatation.
3. Write a Divide and Conquire General Algorithm.
4. Define Merge Sort?
5. List Shortest Path Applications.
6. List different algorithm to find spanning tree.
7. Explain Selection of Object in Increasing Order of weight in Kanpsack.
8. Write 0-1 Kanpsack algorithm.
9. What is Dynamic Programming?

- Q.3 a) Explain Push and POP Operation in stack. [6]  
b) Explain How we insert a node in binary tree with suitable example [6]

**OR**

- Q.3 b) Explain Pre Order and In order Traversal with Example. [6]

- Q.4 a) Explain Quicksort algorithm in detail. [6]  
b) Write and Explain Binary Search Algorithm in detail. Also check  $x=151$ ,  
 $x = -14$  and  $x= 9$  are found in the following Entries or Not. [6]  
Entries: -15,-6,0,7,9,23,54,82,101,112,125,131,142,151

**OR**

- Q.4 b) Explain Merge sort in detail. [6]

- Q.5 a) Explain Knapsack Algorithm in detail. [6]  
b) Explain Kruskal's Algorithm. [6]

**OR**

- Q.5 b) Explain Prime's algorithm. [6]

- Q.6 a) Explain Forward Approach in Dynamic Programming. [6]  
b) Explain General Method of Dynamic Programming Approach. [6]

**OR**

- Q.6 b) Explain Backward Approach in Dynamic Programming. [6]

*All the Best*

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SARDAR PATEL UNIVERSITY

M.Sc.IT (Integrated) Examination, 7<sup>th</sup> SemesterWednesday, 8<sup>th</sup> November, 2017.

Evening Time: 02:00 P.M to 05:00 P.M

Subject Code: PS07CIIT03/ Paper No: 03

Subject: Advanced Java Programming

Total Weight age/Marks: 70

Q.1 Multiple Choice Questions.

08

1. Abbreviate the term DSN?
 

A. Digital Source Name	B. Data Source Name
C. Data Socket Name	D. Data String Name
2. An API can be created for \_\_\_\_\_.
 

A. Applications	B. Libraries
C. Operating systems	D. All mentioned above
3. What is javax.servlet.http.HttpServlet?
 

A. Interface	B. Abstract Class
C. Concrete Class	D. None of the Above
4. Which of the following code can be used to clear any data that exists in the buffer as well as the status code and headers?
 

A. request.reset()	B. response.reset()
C. response.resetBuffer()	D. None of the Above
5. Application is instance of which class?
 

A. javax.servlet.ServletContext	B. javax.servlet.HttpContext
C. javax.servlet.Context	D. javax.servlet.Application
6. Which of the following do not supports JSP directly?
 

A. Weblogic Server	B. WebSphere Server
C. Apache HTTP Server	D. Tomcat Server
7. Which of the following is not an implicit object?
 

A. Request	B. Response
C. Cookie	D. Session
8. Which of the following is an approach for state maintenance in Web applications?
 

A. Hidden Form Field	B. URL Rewriting
C. Cookies	D. All of the Above

P.T.O

Q.2 Answer the following questions in short. (Any 07)

- 1) Differentiate between Java AWT and Java Swing.
- 2) List types of JDBC Drivers.
- 3) Draw figure of Network Protocol driver.
- 4) What is Servlet?
- 5) Draw the Web Based Architecture.
- 6) Differentiate between Servlet and JSP.
- 7) What is JSP Scripting element?
- 8) What is JSTL?
- 9) Draw the 3-tier Enterprise Architecture.

Q.3(A) Write steps to connect database with MS Access. 06

(B) Explain JLabel, JTextField and its methods with one example. 06

OR

(B) Explain JButton, JMenuBar and its methods with one example. 06

Q.4(A) Explain Servlet Life Cycle in detail. (With Diagram) 06

(B) Explain Servlet in Brief and write a short note on Advantages of web based applications. 06

OR

(B) Write a short note on the HTTP Servlet Class with doGet() and doPost() method. (Give Example) 06

Q.5(A) Write a short note on JSP Life Cycle. 06

(B) Explain including and forwarding from JSP Pages. 06

OR

(B) Explain JSP Scripting Elements in detail. 06

Q.6(A) Explain J2EE as an application server with Web tier and Business tier. 06

(B) Write a short note on Enterprise Architecture Types. 06

OR

(B) Why J2EE is suitable for the development distributed multi-tiered enterprise applications? Explain what do you understand by container? 06

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No. of Printed Pages : 2

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SARDAR PATEL UNIVERSITY  
M.Sc. Information Technology (Integrated) Examination  
7<sup>th</sup> Semester (CBCS) (Regular & NC)  
Friday, Date : 10<sup>th</sup> November, 2017  
Session : Evening Time : 02:00 P.M. TO 05:00 PM

Course Code: PS07CIIT04

Course Title : Advanced Computer Networking

Total Marks: 70

Q1. Multiple Choice Questions. (Attempt all)

[08]

1. Link State packets give information about \_\_\_\_\_ for routing.
  - a. Flooding
  - b. Neighbors
  - c. Sink Tree
  - d. Zones
2. To reassemble packets correctly at receiver end, \_\_\_\_\_ information is necessary.
  - a. Age
  - b. Sequence number
  - c. Router name
  - d. Send flag
3. Multiprotocol router is also known as \_\_\_\_\_.
  - a. Internal Gateway
  - b. Virtual Circuits
  - c. External Gateway
  - d. Switch
4. Fragmentation is the process of dividing the packet, when packet size \_\_\_\_\_ maximum size which is allowed by a particular network.
  - a. less than
  - b. greater than or equals to
  - c. equal to
  - d. greater than
5. \_\_\_\_\_ method enables HTTPRequest to read a web page.
  - a. post
  - b. put
  - c. trace
  - d. get
6. \_\_\_\_\_ are small java programs used to make interactive webpages.
  - a. Applet
  - b. Thread
  - c. Portal
  - d. XML
7. in, an , er are examples of \_\_\_\_\_.
  - a. Ciphers
  - b. Trigrams
  - c. Digrams
  - d. Bases.
8. If P is any plain text, E is the encryption method and D is the Decryption method and K is the key then which of the following is true:
  - (i)  $D_k(E_k(P)) = P$
  - (ii)  $E_k(D_k(P)) = P$
  - (iii)  $E_k(P) = P$
  - a. Only (ii)
  - b. Only (i) and (ii) are true
  - c. Only (i)
  - d. All (i), (ii) and (iii)

(P.T.O.)

(1)

Q2. Answer the following short questions (Attempt any SEVEN) [14]

1. What is congestion?
2. State the main difference between adaptive and non-adaptive routing algorithms.
3. What is selective flooding?
4. State different parameters based on which data usage is accounted on a network.
5. What is the need of fragmentation?
6. State different ways to generate dynamic web pages.
7. What is URL? List the three parts of an URL.
8. State difference between active and passive intruder?
9. What is Cryptanalysis?

Q3.a. Explain concept of Routing for mobile host in detail. [06]

Q3.b. Explain Shortest path routing with example. [06]

OR

Q3.b. Write a note on congestion prevention policies. [06]

Q4.a. Explain Concatenated Virtual Circuits in detail. [06]

Q4.b. Explain the issues on which networks differ from each other. [06]

OR

Q4.b. What are fragments? Explain types of fragmentation in brief. [06]

Q5.a. Write short note on DSN. [06]

Q5.b. Draw the web model and list the steps that occur on client side when a URL is requested. [06]

OR

Q5.b. Explain Architecture of Electronic Mail in brief. [06]

Q6.a. Explain Substitution cipher in detail. [06]

Q6.b. Explain DES Algorithm in detail. [06]

OR

Q6.b. Explain Transposition cipher in detail. [06]

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**SARDAR PATEL UNIVERSITY****M. Sc. I. T. (Integrated) Examination, 7<sup>th</sup> Semester****Monday, 13<sup>th</sup> November, 2017****PS07EIT01: Image Processing****Time: 02:00 PM to 04:00 PM****Total Marks: 70****Q:1 Give answers of following Multiple Choice Questions****[08]****[01]** An image is considered to be a function of  $a(x, y)$  where  $a$  represents

- (A) height of image (B) width of image  
(C) amplitude of image (D) resolution of image

**[02]** 2D Fourier transform and its inverse are infinitely

- (A) Periodic (B) Aperiodic  
(C) Linear (D) Non-linear

**[03]** Which one is not the source of images?

- (A) Mecatronic (B) Acoustic  
(C) Ultrasonic (D) electronic

**[04]** Square of standard deviation is called

- (A) Noise (B) Restoration  
(C) Variance (D) Power

**[05]** Images usually gets corrupted during

- (A) Transmission (B) Degradation  
(C) Restoration (D) Acquisition

**[06]** Impulse is simulated by

- (A) Gray dot (B) Black dot  
(C) Bright dot (D) Sharp dot

**[07]** Encoder is used for

- (A) Image enhancement (B) Image decompression  
(C) Image equalization (D) Image compression

**[08]** Morphology refers to

- (A) Pixels (B) Pixels  
(C) Matrix (D) Shape

**Q:2 Answer the following short questions (any Seven)****[14]****[01]** What is Digital Image Processing?**[02]** What is image sensors?**[03]** What is image transform? Explain in brief.**[04]** List out smoothing techniques.**[05]** Write the equation of Fourier and Inverse Fourier transform.**[06]** What is image degradation and restoration?**[07]** What is the disadvantage of wiener filtering?**[08]** Which are the data compression techniques?**[09]** List-out techniques of Bit-Plane coding.**P. T. O.**

- Q:3 [A] Explain Elements of visual perception. [06]  
[B] Explain any three components of an image processing system. [06]
- OR
- [B] Explain any three applications of Image Processing [06]
- Q:4 [A] Explain Fourier Transform and Inverse Fourier Transform. [06]  
[B] Explain any two properties of the 2-D Discrete Fourier Transform. [06]
- OR
- [B] Explain any two Image Sharpening techniques. [06]
- Q:5 [A] Explain Noise Probability Density Functions. [06]  
[B] Explain a model of the Image degradation / restoration process. [06]
- OR
- [B] Explain Estimation of Noise Parameters. [06]
- Q:6 [A] Explain source encoder & decoder. [06]  
[B] Explain measuring information and information channel [06]
- OR
- [B] Explain Bit-plane coding. [06]

— X —  
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