## T.Y.B.SC. COMPUTER SCIENCE Data Communication, Networking and Security (<u>DEC - 2017</u>)

	(3 Hours)	[Total Marks: 100]
<ul> <li>N.B (1) All Questions are Compulsory</li> <li>(2)Figures to the right indicate marks</li> <li>(3) Mixing of sub questions is not allowed</li> <li>(4)Draw diagrams wherever necessary</li> </ul>		
Q1. <b>Answer any four</b> (A)Explain the four levels of addressing used in it (B)Explain Bluetooth architecture (C) What is Closed-loop congestion control? Exp (D)Name and explain the different security serv (E) What is a virus? Name the different types of (F) Explain the causes of transmission impairme	nternet Iain Backpressure ices viruses nt	(20)
Q2. <b>Answer any four</b> (A) What are the functions of Data link layer in (B)Explain the 4B/5B line encoding scheme (C) Explain Frequency shift keying (D) Explain Frequency division multiplexing (E) Write a short notes on Microwaves (F) Explain datagram networks	OSI model	(20)
Q3. <b>Answer any four</b> (A) Explain the structure of a hamming code end (B)Explain the stop -n-wait ARQ protocol (C) What are the common transfer modes in HD (D) Explain PPP protocol transition phases with (E) What is controlled access ? Explain any one of (F) Explain a bus back bone network topology	coder and decoder NLC ? a neat diagram controlled access method	(20)
Q4. <b>Answer any four</b> (A) Explain IPv4 datagram format (B)Explain any two transition strategies from IPv (C) What is forwarding? Explain any two forward (D) Explain ARP protocol ? (E) Explain the different traffic profiles for data to (F) Explain FTP protocol	/4 to IPv6 ding techniques flow	(20)
Q5. <b>Answer any four</b> (A) Explain RSA algorithm with an example (B)Explain the concept of a DMZ (C) Write a short notes on Intrusion detection sy (D) What is meant by Denial of service attack ? I (E) Explain the different security mechanisms (F) Explain PGP ?	ystem Explain	(20)

(3 Hours)

N.B 1) All questions are compulsory.

2) Figures to the right indicate full marks.

- 3) Illustrations, in-depth answers & diagrams will be appreciated.
- 4) Mixing of sub questions is not allowed.

## 1. Write short notes on (any four)

A. Cookies

T.Y.B.SC. COMPUTER SCIENCE **Advanced Java** 

(DEC - 2017)

- B. JTabbedPane
- C. ResultSet
- D. RMI Registry Service
- E. Life Cycle of a Stateful Session Bean
- F. Servlet Life Cycle

## 2. Attempt the following(any Four)

- A. Explain PreparedStatement using Code Snippets.
- B. How are swing components different from AWT components?
- C. Explain RootPane Container and also specify its four Parts.
- D. Describe the way a stored procedure is called in JDBC.
- E. Write a Java Program to create JFrame containing JDesktopPane which has a single JInternalFrame.
- F. Write a JDBC program to accept table name and display only column names.

## **3.** Attempt the following(any four)

- A. State and describe 2 methods of creating a Thread based java program.
- B. What is synchronization? What are the various ways to synchronize the Thread? Explain using programming snippet.
- C. Explain the class URLConnection.
- D. Write a short note on RMI Architecture.
- E. Explain the role of following classes with any of its two methods: i. Socket ii. ServerSocket
- F. Write a Java program to create only a TCP Server Program that listens to port 2350 to accept client connection.

## 4. Attempt the following(any four)

- A. Explain the Java Servlet Architecture.
- B. Explain following Interfaces:
  - i. ServletContext
- C. Write a short note on JSP include directive.
- D. Explain error handling mechanism in JSP with code snippet.
- E. Explain jsp:usebean tag with an example.
- F. Write a Servlet which reads a value from Cookie which is already set and display the value on the Screen.

ii. ServletConfig

## 5. Attempt the following (any four)

- A. List and explain call back methods of stateless session bean.
- B. Explain the architecture of EJB.
- C. Explain SOAP, UDDI and WSDL.
- D. What is JAX-WS? Explain the uses of JAX-WS.
- E. Write a short note on Message Driven Bean.
- F. Write a web service program which will return factorial of a number passed to it.

**Total Marks: 100** 

20

20

20

## 20

20

[Total Marks 100]

# T.Y.B.SC. COMPUTER SCIENCE **Operating Systems and Linux**

(DEC - 2017)

## (3 Hours)

- Note : 1. All the questions are compulsory
  - 2. Figures to right indicate full marks
  - 3. Draw suitable diagrams wherever necessary.
  - 4. Mixing of sub questions are not allowed

#### Attempt any following (Any Four) Oue 1

- Explain process control block and its role. a)
- Explain Dekker's and Peterson's algorithm and their final correct solution for b) two processes.
- Explain difference between paging and segmentation in memory management. c)
- d) Explain Linux File System in detail
- e) Explain vi Editor in Linux with its modes.
- Explain procedure for adding and removing users in Linux. f)

### Oue 2 **Attempt any following ( Any Four)**

- Explain different services of operating System a)
- Explain Five state process model with neat diagram b)
- Explain batch operating system and time shared operating system c)
- Explain FCFS and Round Robin algorithm with suitable example. d)
- Explain 1) job queue 2) ready queue 3) device queue e)
- Explain what is scheduler and its types. f)

### **Attempt any following ( Any Four)** Que 3

- Obtain Solution for Dinning philosophers problem using monitors. a)
- Explain Bankers Algorithm with suitable example. b)
- Explain Contiguous and non- contiguous memory allocation with suitable c) example.
- d) Explain semaphore and its types, also explain operations on semaphore.
- Explain any of disk file allocation method e)
- Explain first fit and worst fit techniques related to memory management by f) giving suitable example.

### **Attempt any following ( Any Four)** Que 4

- Describe Features of Linux in detail. a)
- Explain Linux File directory tree structure with neat diagram. b)
- What are init run levels in Linux. c)
- d) Explain cut and sort commands with their options.
- Explain how to change file permissions with the help of chmod command by e) its two modes.
- Explain mounting and un-mounting devices in Linux. f)

### **Attempt any following ( Any Four)** Que 5

- Explain characteristics of good password. a)
- b) Explain sed command with its options.
- Explain how ip addresses are resolved to connect to Remote site. c)
- Explain different shell Environment variables in Linux. d)
- Write a shell script to accept three numbers from user and print greatest of e) three numbers.
- Explain different r-utilities of TCP/IP in Linux by giving suitable example of f) rcp, rwho, rlogin.

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# [20]

[20]

[20]

- [20]

[20]

# T.Y.B.SC. COMPUTER SCIENCE DBMS II & Software Engineering

(<u>DEC - 2017)</u>

## (3 Hours)

## Note: (1) All questions are compulsory.

- (2) Figures to the right indicate full marks.
- (3) Illustrations, in-depth answers and diagrams will be appreciated.
- (4) Mixing of sub-questions is not allowed.

## Q1. Write short note on (any FOUR):

- (A) ACID Properties
- (B) %Rowtype Attribute
- (C) GOTO statement
- (D) Project Management
- (E) Regression Testing
- (F) System Testing

## Q2. Attempt the following (any FOUR):

- (A) Explain "All or Nothing Principle" of transaction. Support your answer with the help of an example.
- (B) Consider the following two transactions and schedule (time goes from top to bottom). Is this schedule conflict-serializable? Explain why or why not.

Transaction T <sub>0</sub>	Transaction $T_1$
Read(A)	
Write(A)	
	Read(A)
	Read(B)
	Commit
Read(B)	
Write(B)	
Commit	

- (C) Explain 4NF with example.
- (D) What is Deadlock? List the methods to handle deadlock and explain the method of deadlock prevention.
- (E) Explain the role of Lock Manager? Support your answer with example.
- (F) Describe the term Checkpoint and explain the three steps of Checkpointing in ARIES.

[Total Marks: 100]

(20)

(20)

## **Turn Over**

(20)

(20)

(20)

## Q3. Attempt the following (any FOUR):

- (A) Explain the syntax of PL/SQL block with example.
- (B) Explain the concept of simple Loops in PL/SQL with example.
- (C) Write a note on query optimization.
- (D) Explain the role of Null statement with the help of an example.
- (E) What is explicit cursor? State the steps to implement explicit cursor with an example.
- (F) Define sequence with its syntax. Name the methods used to retrieve current and next value of the sequence.

## Q4. Attempt the following (any FOUR):

- (A) Explain the major role of Project Manager.
- (B) Write a note on WBS.
- (C) Explain Unified Process with its phases.
- (D) What is the significance of PERT and list its advantages?
- (E) Explain any five practices of Extreme Programming.
- (F) Consider a database system needed for an organization with the system size of 3 KDSI as an organic project. Calculate the effort, duration of development and average staffing of the project.(Organic a=2.4, b=1.05, c = 2.5, d=0.38)

## Q5. Attempt the following (any FOUR):

- (A) Explain the principles of static testing.
- (B) What is black box testing? List its major objectives and types.
- (C) Define test plan. List and explain the contents of test plan.
- (D) Explain any five elements of Software Quality Assurance.
- (E) Write a note on Object Oriented Testing strategy.
- (F) Calculate the cyclomatic complexity of the given program

Procedure greater;

Integer: x,y,z = 0;

- 1. enter the value of x;
- 2. enter the value of y;
- 3. if x > y then
- 4. z = x;
- else
- 5. z = y;
- 6. end greater