T.Y.B. SC (COMPUTER SCIENCE)
DATA COMMUNICATIONS, NETWORKING & SECURITY
(PAPER – I) *JAN-2020*

Total Marks: 100

N.B. **1) All questions are compulsory.**
2) Figure to the right indicate marks.
3) Draw neat diagrams wherever necessary.
4) Mixing of sub-questions is not allowed.

Q.1. Attempt any four. 20 M

a. Write a short note on OSI reference model.
b. Explain Analog to digital conversion.
c. What are different methods of error correction?
d. Write short note on DHCP.
e. List the devices used at various layers of OSI model.
f. What is Cryptography?

Q.2. Attempt any four. 20 M

a. List the functions of physical layer.
b. what are the different types of transmission modes?
c. List and explain the factors on which data rate is depend.
d. Classify transmission media.
e. Distinguish between circuit switching and packet switching
f. What is multiplexing? Explain its goal.

Q.3. Attempt any four. 20 M

a. What is parity check method of Error detection?
b. Distinguish between flow control and error control.
c. List the various multiple access protocols.
d. Describe the frame format of HDLC.
e. List the advantages of VLAN.
f. Explain in short cellular telephony.

Q.4. Attempt any four. 20 M

a. What are the limitation of IPv4?
b. What is subnetting ? Why it is needed?
c. Explain how ARP works.
d. Explain RIP and OSPF.
e. Explain the process of multiplexing and demultiplexing at transport layer.
f. List the advantages of IMAP4 over POP3.

Q.5. Attempt any four. 20 M

a. What are the goals of network security?
b. Who are hackers? Explain hacking techniques.
c. Give classification of Malicious programs.
d. Explain the process of e-mail message data flow.
e. What is snooping, masquerading and denial of service
f. Explain the symmetric key cryptography process.

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Time: 3 Hours **Marks: 100**

N.B. 1) All questions are compulsory.
2) Figures to the right indicate marks.
3) Draw suitable diagrams wherever necessary.
4) Mixing of sub-questions is not allowed.

T.Y.B. SC (COMPUTER SCIENCE)
ADVANCED JAVA
(PAPER – II) *JAN-2020*

Q1. Write short notes on: (any FOUR): (20)
a) Cookies.
b) ResultSetMetaData.
c) Thread Scheduling.
d) JTabbedPane.
e) RMI Architecture.
f) HttpServlet class.

Q2. Attempt the following (any FOUR): (20)
a) How to create table in swing.
b) Explain any three text entry components.
c) State the role of JFrame class and explain it with code snippet.
d) Write a note on Callable Statement interface.
e) Write a swing program for Login GUI containing label, text field and button.
f) Write a JDBC program that insert record into the Student table.
(Assume: Student: Sno,Sname,Course,Marks)

Q3. Attempt the following (any FOUR): (20)
a) Explain Life Cycle of thread.
b) Explain URLConnection classes and it's any 4 methods.
c) List and explain steps to run RMI with example.
d) Give the significance of Socket and ServerSocket.
e) What is synchronization? What are the various ways to synchronize the Thread? Explain using programming snippet
f) Write a Java program to create only a TCP Server Program that listens to port 2833 to accept client connection.

Q4. Attempt the following (any FOUR): (20)
a) Explain life-cycle of JSP Page.
b) State and explain various methods of HttpServletResponse class.
c) What are implicit objects? Explain any 4 implicit objects of jsp.
d) Explain include directive along with its attributes.
e) Write a servlet that accepts an integer value from html file and check whether number is Even or Odd .
f) Write a JSP program that prints the sum of natural number series up to 'N'.
(N should be accepted from user).

Q5. Attempt the following (any FOUR): (20)
a) Explain the architecture of EJB.
b) List and explain different types of EJB Beans.
c) Difference between Statefull and stateless session bean.
d) Explain SOAP, UDDI and WSDL.
e) Write a note on JAX-WS.
f) Write a web service program which will return factorial of a number passed to it.

T.Y.B. SC (COMPUTER SCIENCE)

OPERATING SYSTEMS & LINUX

(PAPER – III) *JAN-2020*

me: 3 Hours) **[Total Marks: 100]**

N.B: (1) All questions are compulsory.
(2) Figures to the right indicate marks.
(3) Draw diagrams wherever necessary.
(4) Mixing of sub-questions is not allowed.

Q1. **Attempt the following (any FOUR):** **(20)**

(A) Explain the following types of operating systems:
i) Time sharing
ii) Real time

(B) List and explain 4 data structures of Banker's algorithm.

(C) State the use of following Linux Directories :
i) /bin
ii) /dev
iii) /media
iv) /tmp
v) /root

(D) Discuss Berkley r-utilities.

(E) Diagrammatically explain Layered approach in operating system structure.

(F) Write any 5 openSSH components.

Q2. **Attempt the following (any FOUR):** **(20)**

(A) Explain types of system calls.

(B) Consider the following set of processes, with the length of the CPU-burst time in milliseconds

Process	Arrival Time	Priroty	Burst Time
P1	2	1(Highest)	8
P2	0	3(Lowest)	4
P3	1	2	1

Illustrate the execution of the processes using Priority (preemptive) Draw Gantt chart. Also calculate average waiting time and average turnaround time for these processes.

(C) Define dependent & independent process. State the advantages of dependent processes.

(D) Diagrammatically explain 5 state process model.

(E) Discuss user and kernel thread.

(F) Describe Semaphores and operations performed on it. What is a Binary Semaphore?

Q3. **Attempt the following (any FOUR):** **(20)**

(A) Diagrammatically explain Dining philosopher's problem.

(B) What is a deadlock? What are necessary conditions for a deadlock to occur?

(C) For the following page reference string, calculate total number of page faults with FIFO and LRU algorithm with frame size=3
Reference string = 1,2,3,4,2,5,6,2,3,2

(D) Discuss free space management techniques of file system.

(E) Explain any two Disk scheduling algorithms with example.
(F) Describe with a neat diagram, steps in handling page faults.

Q4. Attempt the following (any FOUR): (20)

(A) Write any five features of Linux.
(B) Describe the test command for Numeric comparison with example.
(C) Explain following points in regards with environment variables:
- i) What is environment variable?
- ii) Command to view global environment variable.
- iii) Initialization of variable.
- iv) Command to make local variable as global.
- v) Command to delete local variable.

(D) Discuss chmod command.
(E) State the use of read command along with its options. Also, give example.
(F) Write the use and syntax of case statement along with example.

Q5. Attempt the following (any FOUR): (20)

(A) Write a short note on standard file descriptors.
(B) Describe ftp in detail.
(C) Explain the following job scheduling commands
- i) at
- ii) batch

(D) Write any 5 administrator's privileges.
(E) Which contents are stored in Superblock? Explain.
(F) Discuss following jobs of iptables firewall:
- i) Packet filtering
- ii) Routing
- i) Network Address Translation (NAT)

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T.Y.B. SC (COMPUTER SCIENCE)
DBMS II AND SOFTWARE ENGINEERING
(PAPER – IV) *JAN-2020*

Time: 3Hrs **Total Marks: 100**

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):** 20

(A) Functional Dependency.
(B) PL/SQL Data types.
(C) Black Box Testing.
(D) Principles of Testing.
(E) Role of Project Manager.
(F) Risk Management.

Q2. Attempt the following **(Any Four):** 20

(A) Explain multivalued dependency with an example?
(B) Describe ACID properties?
(C) Explain Concurrency control by time stamp?
(D) Describe the concept of recovery from a system crash?
(E) Explain fifth normal form?
(F) Explain the concept of dead locks?

Q3. Attempt the following **(Any Four):** 20

(A) Explain the PL/SQL block with an example.
(B) Explain cursor with it types?
(C) Define transaction with an example?
(D) Describe ROLLBACK with and example?
(E) Difference between implicit and explicit cursor?
(F) Give an example of CASE statement?

Q4. Attempt the following **(Any Four):** 20

(A) What is the significance of Gantt chart and list its advantages?
(B) Explain the various level of CMM?
(C) Explain the project Management process?
(D) Describe the Role of software Metrics?
(E) Explain the management of object oriented metrics for project management?
(F) What is Software Project Risk Management? Explain the activities involved in it?

Q5. Attempt the following **(Any Four):** 20

(A) Discuss the Software Quality Assurance in context with Six Sigma?
(B) Explain the challenges in Software Testing?
(C) Explain the common terms like Bug, Crash, Fault, Error and Failure in Software Testing?
(D) Describe the object oriented Software Testing Strategies?
(E) Explain the types of Software Testing?
(F) Explain White Box Testing in Details?

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1057 / Web Design - Paper I - Principles of Web Design and Web Technologies.

TIME: 2 Hours **Marks: 60**

N.B:

1. **All questions are compulsory.**
2. **Figures to the right indicate full marks.**
3. **Draw a diagram wherever necessary.**
4. **Mixing of sub-questions is not allowed.**

Q.1 Attempt the following **(Any FOUR)**

A	Explain the categories of Navigation.	**(03)**
B	What is WEB TYPOGRAPHY?	**(03)**
C	What can in-browser JavaScript do?	**(03)**
D	Explain the working of AJAX.	**(03)**
E	What is CSS explain in detail.	**(03)**
F	Explain the following jQuery methods: a. append() b. prepend() c. after()	**(03)**

Q.2 Attempt the following **(Any THREE)**

A	Explain the following term:- a. Internet b. ISP c. WWW d. http	**(04)**
B	Explain <img> tag with an example.	**(04)**
C	What is HTML FRAMES? Explain with an example.	**(04)**
D	What is the purpose of <head> tag.	**(04)**

Q.3 Attempt the following **(Any THREE)**

A	What is Javascript ?	**(04)**
B	What is DTD and explain its types?	**(04)**
C	What is DOM?	**(04)**
D	What is XML Data Binding**?**	**(04)**

Q.4 Attempt the following (**Any THREE**)

A	What is PHP? Explain with its features.	**(04)**
B	How can we create PHP AJAX application? Explain with an example.	**(04)**
C	Explain XMLHttpRequest object with its methods and attributes.	**(04)**
D	Write a program in AJAX how a web page can fetch information from an XML file.	**(04)**

Q.5 Attempt the following **(Any THREE)**

A Explain the different ways in which CSS and Ajax can work together. **(04)**

B What is jQuery ? **(04)**

C Explain Callback Function for attr(). **(04)**

D Explain the following jQuery Properties:- **(04)**

a. context

b. jQuery.fx.interval

c. jQuery.fx.off

d. length

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T.Y.B. SC (COMPUTER SCIENCE)

NET TECHNOLOGIES

WEB DESIGN - PAPER II -JAN-2020

2 Hours) **[Total Marks: 60]**

N.B: (1) All questions are compulsory.
(2) Figures to the right indicate marks.
(3) Draw diagrams wherever necessary.
(4) Mixing of sub-questions is not allowed.

Q1. **Attempt the following (any FOUR):**

(A) Explain the importance of CTS. **(03)**

(B) How cross language interoperability is achieved in .NET? **(03)**

(C) What are different data types used in VB.NET? **(03)**

(D) What is AutoPostBack? **(03)**

(E) List advantages of ADO.NET. **(03)**

(F) What are the uses of AJAX in ASP.NET? **(03)**

Q2. Attempt the following (any THREE):

(A) What is the use of delegates? Explain with example. **(04)**

(B) Write a short note on event handling process in VB.NET. **(04)**

(C) Write a note on type conversion in VB.NET? **(04)**

(D) List and explain different functions of DateTime class. **(04)**

Q3. Attempt the following (any THREE):

(A) List and explain different access specifiers in .NET. **(04)**

(B) What is the use of partial classes in inheritance? **(04)**

(C) Write a note on ADO.NET data providers. **(04)**

(D) What is LINQ? Explain with example. **(04)**

Q4. Attempt the following (any THREE):

(A) List and explain different files used in ASP.NET applications. **(04)**

(B) Write a short note on web control classes. **(04)**

(C) Explain session state management with an example. **(04)**

(D) What is the use of advertisement file in AdRotator? Explain its components. **(04)**

Q5. Attempt the following (any THREE):

(A) Explain in brief: **(04)**
(i) Single value data binding (ii) Repeated value data binding

(B) Explain different XML classes. Support your answer with an example. **(04)**

(C) What is the use of script manager? Also explain partial and timed refresh. **(04)**

(D) What are ASP.NET web services? **(04)**
