Total No. of Questions : 5]

SEAT No. :

PC-1587

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T.Y. B.Sc.
COMPUTER SCIENCE
CS-361 : Operating Systems-II
(Rev. 2019 Pattern) (Semester - VI)

Time : 2 Hours] ***[Max. Marks : 35***

Instructions to the candidates:

1) ***All questions are compuslory.***
2) ***Figures to the right indicates full marks.***

Q1) Attempt any Eight of the following : **[8 × 1 = 8]**

a) List any four file attributes.

b) Define starvation.

c) What do you mean by full stroke lime ?

d) Define Distributed systems.

e) List the limitations of single level directory.

f) What is mobile operating system ?

g) Kernel is core of any operating system. Justify True/False.

h) Define deadlock.

i) What do you mean by disk Bandwidth ?

j) What do you mean by Grid Computing ?

P.T.O.

Q2) Attempt any Four of the following : **[4 × 2 = 8]**

a) Write features of mobile operating system.

b) List the different types of Distributed systems.

c) Explain any two Disk performance parameters.

d) Explain resource allocation Graph.

e) What do you mean by absolute path and relative path.

Q3) Attempt any Two of the following : **[2 × 4 = 8]**

a) Explain Design goals of distributed systems.

b) Write short note on Disk Mangement.

c) Consider the following snapshot of the system A, B, C, D are the resource types.

	Allocation				Max				Available			
	A	B	C	D	A	B	C	D	A	B	C	D
P_0	0	0	1	2	0	0	1	2	1	4	2	0
P_1	1	1	0	0	1	7	5	0				
P_2	1	3	5	4	2	3	5	6				
P_3	0	6	3	2	0	6	5	2				
P_4	1	0	1	4	1	6	5	6				

Answer the following questions using Banker's Algorithm.

i) What are the contents of need array.

ii) If the system is in safe state give the safe sequence.

iii) If the request from process P_1 arrived for (0, 4, 2, 0) can it be granted immediately.

Q4) Attempt any Two of the following : **[2 × 4 = 8]**

a) Explain the necessary conditions for a Deadlock to occur.

b) Explain linked Allocation of file in detail.

c) Explain iphone Architecture in detail.

Q5) Attempt any one of the following: **[1×3=3]**

a) Write Advantages and Disadvantage of Distributed systems.

b) Assume there are total 200 tracks are presents on each surface of the disk. If request quecee is 30,140,20,170,60,190 and initial position of the head is 120. Apply following disk scheduling Algorithms & calculate total head movement.

i) FCFS

ii) SSTF

Total No. of Questions : 5]

SEAT No. : ____

PC-1588

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T.Y. B.Sc. (Computer Science)

CS - 362 : SOFTWARE TESTING

(Rev-2019) (Semester - VI)

Time : 2 Hours] ***[Max. Marks : 35***

Instructions to the candidates :

1) ***All questions are compulsory.***
2) ***Figures to the right indicate full marks.***
3) ***Assume suitable data, if necessary.***

Q1) **Attempt any Eight of the following :** **[8 × 1 = 8]**

a) Define the term fault.

b) What is driver?

c) What is Graph Matrix?

d) Define the term Test plan?

e) List out the characteristics of test,

f) What is the purpose of web application?

g) Define the term Acceptance testing.

h) What is the purpose of accessibility testing.

i) List out the features of agile testing.

j) Define the term System Testing.

Q2) **Attempt any Four of the following :** **[4 × 2 = 8]**

a) What is cyclomatic complexity? How it is computed?

b) Explain the dimensions of Quality.

c) Explain the types of performance testing.

d) List out Agile principles in details.

e) Differentiate between the alpha and beta testing.

P.T.O.

Q3) **Attempt any Two of the following :** **[2 × 4 = 8]**

a) Describe test case template with the help of example.

b) Explain the process of load testing. Give the examples of load testing.

c) Differentiate between testing and debugging

Q4) **Attempt any TWO of the following :** **[2 × 4 = 8]**

a) Define the term navigation testing. How to test navigation syntax and semantics?

b) Differentiate between White box testing and Black Box Testing

c) Explain the V —model with the help of suitable diagram

Q5) **Attempt any ONE of the following :** **[1 × 3 = 3]**

a) Explain the Internationalization testing phases with suitable diagram.

b) What is unit testing? What are the advantages and disadvantages of unit testing?

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Total No. of Questions : 5]

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PC-1589

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T.Y. B.Sc. (Computer Science)

CS - 363 : WEB TECHNOLOGIES - II

(Rev. 2019 Pattern) (CBCS) (Semester - VI)

Time : 2 Hours] *[Max. Marks : 35*

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figures to the right indicate full marks.***

Q1) **Attempt any Eight of the following :** **[8 × 1 = 8]**

a) What is the use of trigger_error()?

b) Define selectors in jQuery.

c) How to set cookie values and destroy the cookies?

d) What are the different values of readyState property of XMLHttpRequest?

e) What is XML?

f) Define Page Redirection.

g) Define Sticky Form.

h) List the features of JavaScript.

i) List applications of AJAX currently running in the market.

j) View and Model can be called by controller. True/False.

Q2) **Attempt any Four of the following :** **[4 × 2 = 8]**

a) What is the difference between Cookies and Session?

b) Explain DOM Manipulation Methods used in jQuery with proper example.

c) Explain the Syntax Rules for XML.

d) Define events in JavaScript.

e) List advantage and disadvantage of AJAX.

P.T.O.

Q3) **Attempt any Two of the following :** **[2 × 4 = 8]**

a) Explain working with Database in Codelgniter.

b) Explain Pop-up boxes in JavaScript.

c) How to get SERVER information? Explain with example.

Q4) **Attempt any Two of the following :** **[2 × 4 = 8]**

a) Write php script to display the page visit count using Session.

b) Write an Ajax Program to display details of Students present in student.dat file. The student.dat file contains information as Roll No., Name, Class, Contact No.

c) Write php script to read Book.xml file which contains following details in it and display the Book Id attribute and Book Title.

```
<BookInfo>
        <Book id= "1">
            <Title> Programming in PHP </Title>
            <AuthorName> Mr. Patil </AuthorName>
            <Price> 550.50 </Price>
            <Publish_Year> 2000 </ Publish_Year>
    </Book>
    <Book id= "2">
            <Title> Programming in JAVA </Title>
            <AuthorName> Mr. Pawar </AuthorName>
            <Price> 862.50 </Price>
            <Publish_Year> 2015 </ Publish_Year>
    </Book>
</BookInfo>
```

Q5) **Attempt any One of the following :** **[1 × 3 = 3]**

a) List the features of Codelgniter.

b) Differentiate between XML and HTML.

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Total No. of Questions : 5]

SEAT No. : ____

PC-1590

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T.Y. B.Sc.

COMPUTER SCIENCE

CS-364 : Data Analytics

(Revised 2019 Pattern) (CBCS) (Semester - VI)

Time : 2 Hours] ***[Max. Marks : 35***

Instructions to the candidates :

1) ***All questions are compulsory.***
2) ***Figures to the right indicate full marks.***

Q1) **Attempt any Eight of the following :** **[8 × 1 = 8]**

a) What is web scrapping?

b) What is Data Analytics?

c) What is F1 score?

d) Write any two applications of supervised machine learning.

e) Give the formula for support & confidence.

f) What is an outlier?

g) What is sentiment analysis?

h) What is purpose of n-gram?

i) Define classification.

j) What is Deep learning?

Q2) **Attempt any Four of the following :** **[4 × 2 = 8]**

a) Explain the concept of under fitting & over fitting with example.

b) What is linear Regression? What type of machine learning applications can be solved with linear Regression?

c) List seven layers of social media Analytics.

d) What are advantages of the FP-Growth Algorithm?

e) What are dependant & independent variables?

P.T.O.

Q3) **Attempt any Two of the following :** **[2 × 4 = 8]**

a) What are frequent item set & association rules? Describe with example.

b) What is natural language processing? Give its application.

c) Explain various types of Data Analytics.

Q4) **Attempt any TWO of the following :** **[2 × 4 = 8]**

a) What is Text summarization?

b) What is Logistic Regression? Explain it with example.

c) Consider the following & find out the frequent item set using Apriori Algorithm with minimum support threshold 3.

Tid	Item purchased
1	M, T, B
2	E, T, C
3	M, E, T, C
4	E, C
5	J

Q5) **Attempt any ONE of the following :** **[1 × 3 = 3]**

a) Define the terms :

i) Confusion matrix

ii) Accuracy

iii) Precision

b) What is machine learning? Explain its type.

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Total No. of Questions : 5]

SEAT No. : ____

PC-1591

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T.Y. B.Sc.

COMPUTER SCIENCE

CS - 365 : Object Oriented Programming Using Java - II

(Revised 2019) (Semester - VI)

Time : 2 Hours] ***[Max. Marks : 35***

Instructions to the candidates :

1) ***Answer all questions.***
2) ***Figures to the right indicate full marks.***

Q1) Attempt any Eight of the following (out of ten) : **[8 × 1 = 8]**

a) List any two collection interface.
b) What is multithreading?
c) What is metadata?
d) Write a syntax of comment in JSP.
e) What are the parameters of doPost ().
f) What is spring framework?
g) Define map interface.
h) State any two methods of inner thread communication.
i) Define Result set interface.
j) Define cookies.

Q2) Attempt any four of the following (out of five) **[4 × 2 = 8]**

a) How to create a thread in multithreading?
b) Differentiate between prepared statement & statement.
c) State any two methods for session tracking.
d) What are the advantages of servlet over CGI?
e) Write any two differences between Arraylist & linked list.

P.T.O.

Q3) Attempt any two of the following (out of three) : **[2 × 4 = 8]**

a) Write a JSP program to accept student name, address & class & display it on next page in tabular format.

b) Write a java program to display the odd numbers between 1 to 100. Each number should display after 5 second. (Use sleep())

c) Write a java program to accept the details of student (Rno, Name, Percentage) from user & store it into the database using prepared statement interface.

Q4) Attempt any two of the following (out of three) : **[2 × 4 = 8]**

a) Explain the life cycle of JSP.

b) Write a java program to accept 'n' Employee names through command line store them into the Arraylist collection and display them (use iterator interface).

c) Write a JSP program to display all the prime numbers between 1 to n in Red colour.

Q5) Attempt any one of the following (out of Two) : **[1 × 3 = 3]**

a) Explain JDBC Architecture.

b) Explain synchronization in detail.

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Total No. of Questions : 5]

SEAT No. : ____

PC-1592

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T.Y. B.Sc. (Computer Science)

CS-366 : COMPILER CONSTRUCTION

(Revised 2019 Pattern) (CBCS) (Semester - VI)

Time : 2 Hours] ***[Max. Marks : 35***

Instructions to the candidates :

1) ***All questions are compulsory.***
2) ***Figures to the right indicate full marks.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Assume suitable data if necessary.***

Q1) **Attempt any Eight of the following (out of 10) :** **[8 × 1 = 8]**

a) Define the term Handle.

b) What is a cross - compiler?

c) Lex is a scanner provided by Linux operating system. Justify True/False.

d) List all phases of compiler in sequence.

e) What is a parser?

f) LALR is the best bottom-up parsing method state & Justify True / False.

g) Define Basic Block.

h) What is the use of Display?

i) List code optimization technique.

j) What is sentinel?

P.T.O.

Q2) **Attempt any Four of the following :** **[4 × 2 = 8]**

a) Write short note on S-attributed grammar.

b) Find FIRST and FOLLOW of the following grammar.

$S \rightarrow AB$

$A \rightarrow BS|b|E$

$B \rightarrow bSB'|SB'|aB'$

$B' \rightarrow SSB'|E$

c) What is the basic and auxiliary tasks of a lexical analyzer?

d) Explain the value number method to construct DAG with an example.

e) Construct the local & non-local variable scope or accessibility table for the following blocks A, B, C, D

A

```
X, Y, Z : Integer
B   a : real
    C   H, Z : Integer
D   i, j : integer
```

Q3) **Attempt any Two of the following :** **[2 × 4 = 8]**

a) Check whether the following grammar is SLR or not.

$S \rightarrow bAB|aA$

$A \rightarrow Ab|b$

$B \rightarrow aB|a$

b) Write a lex program to find the sum of N numbers.

c) Write a Recursive Descent Parser (RDP) for the following grammar.

$S \rightarrow aA|SbB$

$A \rightarrow aA|bB$

$B \rightarrow b$

Q4) **Attempt any Two of the following :** **[2 × 4 = 8]**

a) Check whether the following grammar is LL(1) or not

$A \rightarrow aAa|Ab|AA|b$

b) Check whether the given grammar is LR(1) or not.

$E \rightarrow E + T|T$

$T \rightarrow T * F|F$

$F \rightarrow id$

c) Check whether the following grammar is operator precedence or not?

$E \rightarrow E + E \mid E * E \mid (E) \mid id.$

also construct operator precodence relation table.

Q5) **Attempt any One of the following :** **[1 × 3 = 3]**

a) Construct DAG for the following expression

i) 2 * (3 + 4) + (3 + 4) * 2

ii) b + (b + a) / (b – c) * (a – c)

b) Define SOD and SDT. State the task performed by SDT.

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Total No. of Questions : 5]

SEAT No. : ____

PC1593

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T.Y. B.Sc. (Computer Science)

CS-3610: SOFTWARE TESTING AND TOOLS

(Revised 2019 Pattern) (Semester - VI)

Time : 2 Hours] ***[Max. Marks : 35***

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figures to the right indicate full marks.***

Q1) Attempt any Eight of the following. (Out of Ten) **[8×1=8]**

a) The purpose of test case is to determine whether a software application is working as per customer requirement or not? state true or false.

b) What is static testing?

c) Enlist any two features of backlog tool.

d) Define test planning by IEEE standard.

e) Write the formula for calculating branch coverage percentage.

f) Enlist the types of requirement defect.

g) Write any two objective of writing test cases.

h) Define static taste tool.

i) Define coding defect.

j) What is selenium?

P.T.O.

Q2) Attempt any Four of following. (Out of Five) **[4×2=8]**

a) Define bug and explain different software bug.

b) Explain goal of loop coverage testing.

c) Explain exit criteria in test planning.

d) Define any two root causes of defect.

e) Define any two limitation of manual testing.

Q3) Attempt any Two of following. (Out of Three) **[2×4=8]**

a) Enlist open source bug tracking tool and explain any one of them.

b) Explain decision coverage testing with its advantages.

c) Explain the different field of test plan template.

Q4) Attempt any Two of following. (Out of Three) **[2×4=8]**

a) Define defect and explain any four attributes of defect.

b) Consider following code –

```
Input(intx, inty)
{
intsum=x+y;
If(sum>0)
Printf(“ Positive’’);
Else
Printf(“Negative”);
}
```

Testcase 1 :x =10, y=5, Testcase 2:x = –10, y= –5

Consider above test cases scenarios and find the percentage of statement coverage.

c) Explain test automation framework with its different types.

Q5) Attempt any One of following. (Out of Two) **[1×3=3]**

a) Explain extra coding with example?

b) Explain test incident report.

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Total No. of Questions : 4]

SEAT No. :

PC5146

[Total No. of Pages : 2

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S.Y. B.Sc. (Computer Science)

CS - 221 : Object Oriented Concepts Using C++

(2013 Revised Pattern) (Semester - II) (22121)

Time : 2 Hours] *[Max. Marks : 40*

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***All questions carry equal marks.***
3) ***Figures to the right indicate full marks.***
4) ***Assume suitable data, if necessary.***

Q1) Attempt all of the following : **[10×1=10]**

a) What is object oriented programming?

b) Write a syntax of new operator.

c) A function can be declared as private. State True/False.

d) List the types of Template.

e) Define late binding.

f) What does catch (...) mean?

g) Write the syntax of overloading << operator.

h) List the file mode operations in C++.

i) What is pure virtual function?

j) List different types of inheritance in C++.

Q2) Attempt any two of the following questions : **[2×5=10]**

a) What is the need of a friend function in C++ ? Write syntax and features of friend function.

b) Define polymorphism. List and explain types of polymorphism.

c) Write a C++ program to overload binary operator '+' to add two complex numbers.

P.T.O.

Q3) Attempt any two of the following : **[2×5=10]**

a) Differentiate between C++ and C.

b) Explain the terms with example.

i) Pass by reference

ii) Return by reference

c) Write a C++ program to accept the eno, ename, esalary and ebonus for five employees.

Calculate total salary and display the output.

OR

Q4) Attempt any one of the following (a or b) : **[1×10=10]**

a) i) Write a C++ program to accept information about an item (code, name, quantity, rate). Raise an exception if negative no. is entered for the quantity or rate. **[4]**

ii) Write short note on this pointer. **[3]**

iii) What is the use of seekg( ) and seekp ( ) **[3]**

b) i) Write an explain block structure of C++ program. **[4]**

ii) Explain class template with multiple parameters with example. **[3]**

iii) Trace the output of the following C++ code segment. Assume there are no syntax errors Justify : **[3]**

```
Class P
{
      public : void print ( ) {cout < < “Inside P”;}
};
Class Q : Public P
{
      public : void print ( ) {cout < < “Inside Q”;}
};
Class R : Public Q
{ };
int main ( )
{
R r;
r.print ( );
return 0;
}
```