Total No. of Questions : 7]

SEAT No. :

P564

[Total No. of Pages : 3

[5840]-201

M.Sc. (Computer Science)

CSUT -121 : ADVANCED OPERATING SYSTEM

(2029 Pattern) (Semester-II)

Time : 3 Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***Q. 1 is compulsory.***
2) ***Solve any five questions from Q. 2 to Q. 7.***
3) ***Questions from 2 to 7 carry equal marks.***

Q1) Solve any five of the following: **[10]**

a) Explain sigpromask ( ) function

b) Comment "In linux the files are usually accessed via filenames".

c) What is symbolic link?

d) Explain sticky bit.

e) What is orphan & zombie process

f) " Random access I/O is not possible for pipe files". Justify.

Q2) Attempt the following. **[12]**

a) i) State & explain setjmp ( ) & longjmp ( ) functions. **[4]**

ii) What is a) Block special file b) Character special file c) Socket file. **[3]**

b) Explain scenario of delayed write buffer allocation with suitable diagram. **[5]**

Q3) Attempt the following. **[12]**

a) i) Explain wait ( ), wait pid ( ), wait 3 ( ), wait 4 ( ) system call with syntax. **[4]**

ii) Describe major responsibilities handled by kernel. **[3]**

P.T.O.

b) Explain the behaviour of following C program **[5]**

```
# include < signal.h >
main ( )
{
    register int i ;
    setpgrp ( ) ;
    for (i=0; i<10; i++)
    {
        if (fork ( ) ==0)
        {
            if (i & 1)
            setgrp ( ) ;
            printf ("pid= %d pgrp=%d", getpid ( ), getpgrp ( ) );
            pause ( );
        }
    }
    kill (0, SIGINT);
}
```

Q4) Attempt the following. **[12]**

a) i) Explain the behaviour of following C program. **[4]**

```
main ( )
{
    int fd;
    char buff [1024];
    fd=create ("Try", 0666);
    lseek (fd, 2000,2);
    write (fd, "Good morning", 5)
    close (fd) ;
    fd=open (" Try" , O_ RDONLY);
     read (fd, buff, 1024);
     read (fd, buff, 1024);
     read (fd, buff, 1024);
}
```

ii) Explain the data structure used for demand paging. **[3]**

b) Write a program to demonstrate race condition in catching signal. **[5]**

Q5) Attempt the following. **[12]**

a) i) Explain **[4]**

1) Read ( )

2) write ( )

3) read v ( )

4) write v ( ) with syntax

ii) Explain the purpose of nice ( ), getpriority ( ) & setpriority ( ) system call. **[3]**

b) How to manipulate memory? Explain memset ( ), memchr ( ), memcmp ( ), & memmove ( ) functions. **[5]**

Q6) Attempt the following. **[12]**

a) i) Explain advantages & disadvantages of mmap ( ). **[4]**

ii) Give the difference between dup & dup 2 system call with syntax. **[3]**

b) Write a note on " Advanced signal management". **[5]**

Q7) Attempt any two of the following. **[12]**

a) Explain following system calls with syntax.

1) alarm ( )

2) pause ( )

3) raise ( )

b) What is process? Draw & explain in detail process transition diagram of process.

c) Write a C program that prints size of a file for each command line argument. **[5]**

Total No. of Questions : 7]

SEAT No. :

P565

[Total No. of Pages : 2

[5840]-202

M.Sc. (Computer Science)

CSUT -122 : MOBILE TECHNOLOGIES

(CBCS 2019 Pattern) (Semester-II)

Time : 3 Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***Question 1 is compulsory.***
2) ***Solve any five questions from Q. 2 to Q. 7.***
3) ***Questions from Q.2 to Q. 7. carry equal marks.***

Q1) Solve any five of the following: **[10]**

a) What is storyboard?

b) What is JSON parsing?

c) What is Dalvik virtual machine?

d) What is user mobility & device portability.

e) What is broadcast Receiver?

f) Name the types of view groups.

Q2) Attempt all.

a) Describe intent. Explain types of Intents. **[7]**

b) Explain Alarm and Toast with example. **[5]**

Q3) Attempt all.

a) Explain PhoneGap plug-ins. write steps to publish a plugin to npm. **[7]**

b) What is thread? Explain run on ui Thread with example. **[5]**

Q4) Attempt all.

a) Discuss various applications of mobile communication. **[7]**

b) Explain content providers with example. **[5]**

Q5) Attempt all.

a) Explain SMS and MMS with example. **[7]**

b) Explain iOS application cycle with example. **[5]**

P.T.O.

Q6) Attempt all.

a) What is Android? Explain its Architecture in detail. **[7]**

b) Explain various types of event handlers used in Android framework. **[5]**

Q7) Write short notes on any Two of the following. **[12]**

a) Geolocation API.

b) Data types used in swift.

c) Phone Gap

Total No. of Questions : 7]

SEAT No. :

P566

[Total No. of Pages : 2

[5840]-203
F.Y. M.Sc. (Computer Science)
CSUT 123 : SOFTWARE PROJECT MANAGEMENT
(2019 Pattern) (Semester - II)

Time : 3 Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***Q. 1 is compulsory.***
2) ***Solve any Five questions form Q.2 to Q.7.***
3) ***Q.2 to Q.7 carry equal marks.***

Q1) Solve any Five of the following : **[10]**

a) Write a short note on PSP.

b) What is a Project Plan?

c) Write characteristics of Measurement Team Members.

d) Define project. Give any two example of Project.

e) List the outputs of administrative closure in project communication Management.

f) List the processes involves in communication management.

Q2) a) Write common elements of a project plan and also describe the overview of the project. **[7]**

b) Explain CMM model phases with help of diagram. **[5]**

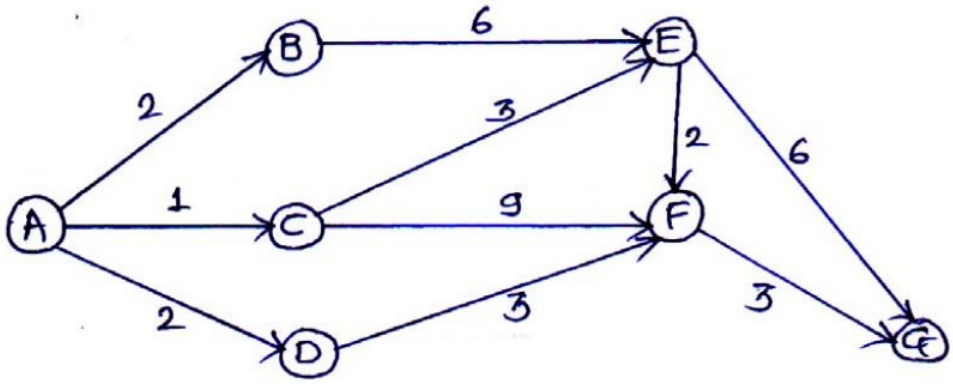
Q3) a) Write a note on Team Structure and Explain in brief tools and methods used in software project Management. **[7]**

b) What is Human resource Management. And describe team development process in Human resource Management. **[5]**

P.T.O.

Q4) a) List the Quality Models and write a note on McCall software quality model. **[7]**

b) Define CPM. Find Critical path for the following Network diagram : **[5]**



Q5) a) Explain the types of Data and What is Good Data. **[7]**

b) Write the categories of Risk. and Explain the Risk Management Processes in detail. **[5]**

Q6) a) Define MTTF and MTBF. Write meaning of Productivity and How do we measure productivity. **[7]**

b) What is EVA? Given the following information for a project, answer the following question. **[5]**
BCWS = 27,000 Rs, BCWP = 18,000 Rs, ACWP = 36,000 Rs.
Find CPI and SPI

Q7) Write short notes on any two of the following : **[12]**

a) Goals of Metrics Plan.

b) Template of Scope statement.

c) Types of contract.

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Total No. of Questions : 5]

SEAT No. :

P567

[Total No. of Pages : 4

[5840] - 204

M.Sc. (Computer Science)

CSDT124B : HUMAN COMPUTER INTERACTION

(2019 Pattern) (Semester - II)

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

Instructions to the candidates :

1) ***Question 1 is compulsory.***
2) ***Solve any 3 questions from Q2 to Q5.***
3) ***Question 2 to Q5 carry equal marks.***

Q1) Solve any five of the following : **[5]**

a) What is meant by sensory memory?

b) What are the steps for interaction design process?

c) What is Design space analysis?

d) What is GOMS?

e) List out the layers of mobile ecosystem?

f) Define overlays and inlays.

Q2) Attempt the following : **[10]**

a) i) What is drag and drop? **[2]**

ii) What is the purpose of drag and drop module? **[4]**

b) Who are stake holders? out line the types of stakeholders for an airline booking system. **[4]**

Q3) Attempt the following : **[10]**

a) i) Define usability and effectiveness. **[2]**

ii) Write a note on principles of learnability. **[4]**

b) Write a short note on clickstream. **[4]**

P.T.O.

Q4) Attempt the following : **[10]**

a) i) What is heuristic evaluation? **[2]**

ii) Negative affect can make it harder to do even easy tasks; positive affect can make it easier to do difficult tasks. What are the implications of this for interaction design. **[4]**

b) Write short note on open system Task Analysis (OSTA) **[4]**

Q5) Attempt any Two of the following : **[10]**

a) Explain with example deductive, inductive and abductive reasoning. **[5]**

b) Write a short note on Fitts's Law. **[5]**

c) Explain the execution - Evaluation cycle. **[5]**

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Total No. of Questions : 5]

P567

[5840] - 204
M.Sc. (Computer Science)
CSDT 124C : SOFT COMPUTING
(2019 Pattern) (Semester - II)

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

Instructions to the candidates :

1) ***Question 1 is compulsory.***
2) ***Solve any THREE questions form Q.2. to Q.5.***
3) ***Q.2. to Q.5. carry equal marks.***

Q1) Solve any five of the following : **[5]**

a) What are the features of membership function.

b) What are the properties of TLN?

c) Compare Human Brain Versus computer.

d) What are the applications of Neural Network.

e) Define multilayer Network.

f) Explain the main operators in GA.

Q2) Attempt the following : **[10]**

a) i) What is cartesian product? Explain with example. **[2]**

ii) Explain Biological Neuron and Artificial Neuron with diagram. **[4]**

b) How genetic algorithms are different from traditional methods. **[4]**

Q3) Attempt the following : **[10]**

a) i) What are the applications of GA. **[2]**

ii) Differentiate feedforword and feedback network. **[4]**

b) Let $x = \{x_1, x_2\}$ $y = \{y_1, y_2\}$, and $z = \{z_1, z_2, z_3\}$ consider the following fuzzy relations : **[4]**

$$R = \begin{array}{c} \\ x_1 \\ x_2 \end{array} \begin{array}{c} \begin{array}{cc} y_1 & y_2 \end{array} \\ \begin{bmatrix} 0.7 & 0.5 \\ 0.8 & 0.4 \end{bmatrix} \end{array} \quad \text{and} \quad S = \begin{array}{c} \\ y_1 \\ y_2 \end{array} \begin{array}{c} \begin{array}{ccc} z_1 & z_2 & z_3 \end{array} \\ \begin{bmatrix} 0.9 & 0.6 & 0.2 \\ 0.1 & 0.7 & 0.5 \end{bmatrix} \end{array}$$

i) Find max-min composition.

ii) Find max product composition.

Q4) Attempt the following : **[10]**

a) i) Explain the crossover in GA. **[2]**

ii) What is supervised and unsupervised learning Explain. **[4]**

b) Consider the fuzzy relation matrix R. **[4]**

$$R = \begin{bmatrix} 1 & 0.8 & 0 & 0.1 & 0.2 \\ 0.8 & 1 & 0.4 & 0 & 0.9 \\ 0 & 0.4 & 1 & 0 & 0 \\ 0.1 & 0 & 0 & 1 & 0.5 \\ 0.2 & 0.9 & 0 & 0.5 & 1 \end{bmatrix}$$

Perform λ-cut operations for the values $\lambda = 1, 0.2, 0.4, 0.7$.

Q5) Attempt the following (Any 2) : **[10]**

a) What is fuzzy set? Explain operations on fuzzy set with diagram. **[5]**

b) Explain perceptron network with diagram. **[5]**

c) What is pattern space & weight space? Explain. **[5]**

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