No. of Printed Pages: 01 Roll No. 1901040041.....

HARCOURT BUTLER TECHNICAL UNIVERSITY, KANPUR

Final Computer Science & Engg.

1st Mid Semester Examination

Odd Semester (VII), 2022-23

ECS- 491: Software Testing

Time: 1 Hours **Max. Marks: 15**

Note: Attempt all questions. All questions carry marks, as shown against them.

1. Define the following terms. (5)
   a. Faults
   b. Software Reliability
   c. Verification and Validation
   d. Test Cases
   e. Software Correctness

2. Explain Black box testing with its type. Design the black-box test suite for a function that checks whether a character string (of up to twenty-five characters in length) is a palindrome. (2+3)

3. Differentiate between white box and black box testing. (2+3)
   Consider the following C function named bin-search:

```
/* num is the number the function searches in a presorted integer array arr */
 int bin_search(int num){
 int min, max;
 min = 0;
 max = 100;
 while(min != max){
    if(arr[(min + max)/2] > num)
    max = (min + max)/2;
    else if(arr[(min + max)/2]
     min = (min + max)/2;
     else return((min + max)/2);
 } return(-1);
}
```

Determine the cyclomatic complexity of the code along with path coverage test case.

H.B.T.U KANPUR

MID SEM EXAM (F-CS / F-IT)

MM: 15 **Mobile Application Development (ECS-451)** TIME: 1 hr

NOTE: ATTEMPT ALL QUESTIONS.

1. What are the different types of mobile applications? Discuss their various pros and cons. **[3]**
2. What are the various factors involved in the development of mobile applications? **[3]**
3. Write short notes on any two - **[3]**
   - Flutter
   - JQuery
   - Mobile Communication
4. What is Agile model of software development? Explain. **[3]**
5. Describe any five features of Java programming language? **[3]**

B. Tech VII Semester CSE /IT Mid Semester Test –I 2022-23

Artificial Intelligence (ECS 452)

MM 15 Time allowed: 1 Hour [redacted]

Note: Attempt all questions. Each question contains 3 marks.

1. Define Artificial Intelligence and explain how AI based approach is different to the traditional approach of computing.
2. What is a Production System? Discuss with a suitable example.
3. Differentiate between informed and uninformed search with suitable examples.
4. What is Heuristic Function ? Discuss the A* Algorithm with example.
5. Why Best First Search (A*) Algorithm does not properly work with problem state space represented in the form of AND-OR graph? What additional data structure is required to handle AO* Algorithm?

Harcourt Butler Technical University, Kanpur

Mid Semester Exam 2022-23

PEC-I (DATA WAREHOUSING & DATA MINING) (EIT-463)

(FCSE/FIT)

Time: 60 min **Max Marks: 15**

Note: Attempt all questions.

1. Define data mining? What factors lead to the mining of data? [3]
2. What is data reduction? Discuss the techniques of data reduction. [3]
3. Explain Apriori algorithm? How can the efficiency of an algorithm be improved? [3]
4. What do you mean by data pre-processing? Explain the various stages in the process of data pre-processing. [3]
5. What is association rules mining? Why are they used? [3]

Date of showing evaluated answer books: November 5th 2022
No. of Printed Pages: 01.

Roll No. .....

HARCOURT BUTLER TECHNICAL UNIVERSITY, KANPUR

Mid Semester Examination - I
Odd Semester (B. Tech, 7th semester), 2022-23
OCE 451: Environmental Pollution and Management

Time: 1:00 Hour **Max. Marks: 15**

Note: 1. Attempt all questions. All questions carry marks as shown against them

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Q.1 **6**

a) With the help of a neat sketch, explain the various stages of Population growth curve for Kanpur City during the period 1971 to 2021. If the birth rate and the death rate of Kanpur for the decade 2011-2021 are 2.3 and 1.75, respectively and both, the immigration and emigration rate are constant, calculate the population growth of Kanpur for the said decade. 4

b) Explain the genesis of South West Monsoon in India 2

Q.2 **9**

a) With a neat sketch, explain the working principle of a gravitational settling chamber 4

b) With a neat sketch, explain the municipal solid waste hierarchical process for its management. 3

c) Determine the Sound Intensity Level (dB) for a sound intensity of $0.01 W/m^2$ 2