



## CONTINUOUS ASSESSMENT TEST- 1, DECEMBER 2022

Programme & Branch : B.Tech., CSE, CYBER, IoT  
Semester : III Date & Session : 05/12/2022 & AN  
Course Code & Name : CSD 2104 & Software Engineering  
Duration : 90 minutes Maximum Marks : 50

### ANSWER ALL QUESTIONS

#### PART A (5 X 2 = 10 MARKS)

1. List out the design concepts exhibit in well-designed good software model.
2. Define refactoring in design concept.
3. Draw quality requirements tree in web application design.
4. Enumerate Garvin's quality dimensions.
5. What are the McCall's software quality factors?

#### PART B (2 X 16 = 32 MARKS)

- 6.a (i) Describe the design concept that create design model. (8)  
(ii) Summarize software quality guidelines and attributes in the design process. (8)
- (OR)
- b (i) Discuss the design of comprehensive framework that describes program structure and its architecture. (16)
- 7.a (i) Elaborate the design method for the set of software components. (8)  
(ii) Explain three views and four principles of the design model. (8)
- (OR)
- b (i) Analyze step-by-step transform mapping of safe home security using data flow diagram to software architecture. (16)



B.S. Abdur Rahman

Crescent



**PART C (1 X 8 = 8 MARKS)**

- 8.a (i) Explain the analysis and design model that require human interaction. (8)

(OR)

- b (i) Demonstrate types of design patterns that are used for finding the solution for the problem to create new applications based on the context. (8)

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D - semi  
D - cat  
Software Engineering



CSD 2102

## CONTINUOUS ASSESSMENT TEST - 1 OCTOBER 2022

Programme & Branch : B.Tech CSE, IoT, Cyber Security  
Semester : III Date & Session : 08/10/22 AN  
Course Code & Name : CSD 2102 & Digital Systems  
Duration : 90 minutes Maximum Marks : 50

**ANSWER ALL QUESTIONS**

### PART A (5 X 2 = 10 MARKS)

1. Infer the binary, octal and hexadecimal value of the decimal number  $423_{10}$ .
2. Find the 1's and 2's complement on number:  
a) 11011011  
b) 110101001
3. State Duality theorem.
4. Design the truth table for the boolean function  $F = (X \cdot Y) + X' \cdot Y$
5. How does the sign magnitude represent positive and negative numbers?

### PART B (2 X 16 = 32 MARKS)

- 6.a (i) Construct 4-bit gray code for the decimal equivalent. (8)  
(ii) Interpret the decimal number 0 to 9 in 8 4 -2 -1 code and 2 4 2 1 code. (8)
- (OR)
- b (i) Simplify the boolean functions to minimum number of literals  
 $F = A'B'C + A'BC + AB$  (8)  
(ii) Draw the logic diagram and construct the truth table for the given boolean expression  
 $F(A,B,C) = A'BC' + A'B'$ . (8)



CSD 2102

- 7.a (i) Design and implement the Half adder and Full adder .  
 (ii) Explain the design procedure for combinational circuit.

(10)  
 (6)

**(OR)**

- b (i) Minimize the Sum of Product (SOP) for the  $F(W, X, Y, Z) = m(1, 2, 3, 10, 11, 12, 13, 14, 15)$  using K-Map method.  
 (ii) Design and Implement an 8:1 Multiplexer. Mention any four use of Multiplexer.

(8)  
 (8)

### PART C (1 X 8 = 8 MARKS)

- 8.a Compile the steps involved in converting the Product of Sum to Standard Product of Sum and find the MAX terms for the  $F(A, B, C, D) = (A + B) (A + B' + C) (C' + D') (A + B + C + D')$  (8)
- (OR)**
- b. With a neat design procedure, explain the implementation of a 3-bit Magnitude Comparator.

(8)

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Digital  
 system

III Sem.  
 I cat.



### CONTINUOUS ASSESSMENT TEST- 1 OCTOBER 2022

Programme & Branch : B.Tech (Common to all branches)  
Semester : III Date & Session : 12/10/2022, AN  
Course Code & Name : SSDX04, Dynamics of Indian Social Structure.  
Duration : 90 minutes Maximum Marks : 50

**ANSWER ALL QUESTIONS**

#### PART A (5 X 2 = 10 MARKS)

1. Define Sociology
2. Enumerate the various linguistics composition of India.
3. List any four characteristics of Urban society.
4. What is exogamy and endogamy?
5. Define patriarchal family

#### PART B (2 X 16 = 32 MARKS)

- 6.a (i) Discuss diversity in Indian society and examine the features of its synthesis. (8)  
(ii) Explain important characteristics of Indian tribal society. (8)  
**(OR)**
- b (i) What are the different types of family in India? (8)  
(ii) What is rural community? Explain the characteristics of rural society in India. (8)
- 7.a (i) Discuss family as a basic fundamental social institution with its functions. (8)  
(ii) Explain any four advantages and disadvantages of Joint family system in India. (8)  
**(OR)**
- b (i) Explain the changes in marriage institution in modern India. (8)  
(ii) Differentiate between Rural and Urban society. (8)



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Approved University under 3 of the UGC Act, 1956

SDX04

**PART C (1 X 8 = 8 MARKS)**

- 8.a Do you agree with the view that the joint family system is disintegrating in India? Discuss. (8)

(OR)

- b. Explain the significance of marriage as a social institution. (8)

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Dynamics and  
Structure -

SEDX 04.

P. Hanifa.  
I Cat



**CONTINUOUS ASSESSMENT TEST- 1 OCTOBER 2022**

Programme & Branch : B.Tech & CSE, CS and IoT  
Semester : III Date & Session : 11/10/2022 & AN  
Course Code & Name : CSD 2104 & Software Engineering  
Duration : 90 minutes Maximum Marks : 50

**ANSWER ALL QUESTIONS**

**PART A (5 X 2 = 10 MARKS)**

1. Write the IEEE definition of software engineering.
2. Differentiate verification and validation.
3. Why system engineers must understand the environment of a system?  
Give two reasons.
4. List the characteristics of a good system requirements specification.
5. Distinguish between the terms inception, elicitation and elaboration with reference to requirements.

**PART B (2 X 16 = 32 MARKS)**

- 6.a (i) Explain about the umbrella activities which support software development process and discuss about their necessity in maintaining the quality in both software process and product that is being developed. (16)

**(OR)**

- b (i) Enumerate the various principles of agile software development. (6)  
(ii) Discuss the spiral model of prescriptive process that helps for development of large scale systems and software. (10)

- 7.a (i) Construct use case diagram, class diagram and state diagram for a safehome security function in requirements engineering model using UML. (16)

**(OR)**



CSD 2104

- b. (i) Demonstrate the broad spectrum of task and techniques that lead to an understanding of requirements.

(16)

**PART C (1 X 8 = 8 MARKS)**

- 8.a (i) Compare and contrast iterative life cycle model and waterfall life cycle model based on their distinctive factors, strengths and weakness.  
(OR)
- b. (i) Analyse the requirements gathering for assessing quality of software product.

(8)

(8)

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Software  
Engineering

1 Ans

2 cont.

**CONTINUOUS ASSESSMENT TEST- 1 OCTOBER 2022**

Programme & Branch : B.Tech & CSE ,IoT,CS  
Semester : III Date & Session : 10/10/2022 & AN  
Course Code & Name : CSD 2103 & DATA STRUCTURES  
Duration : 90 minutes Maximum Marks : 50

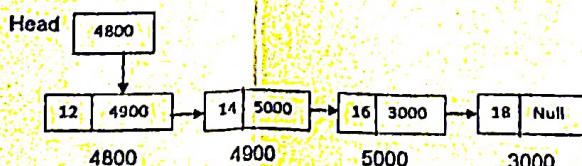
**ANSWER ALL QUESTIONS**

**PART A (5 X 2 = 10 MARKS)**

1. State the importance of data structures.
2. Distinguish between polish and reverse polish notation.
3. Give the diagrammatic representation of a circular doubly linked list.
4. Differentiate linear and non-linear data structure.
5. Define pointer in data structures.

**PART B (2 X 16 = 32 MARKS)**

- 6.a (i) In a system, if we maintain a sorted list of IDs in an array id[ ] = [20, 35, 50, 70, 80], write an algorithm for inserting a new ID 65 to it and display the updated array. (16)  
(OR)
- b (i) Elaborate the declaration and initialization of a two-dimensional array with suitable example. (4)
- (ii) Write suitable algorithms to perform the following operations in the given singly linked list :



- Insert 10 in the beginning.
- Insert 20 at the end.

(12)

- 7.a (i) Explicate about the procedure for converting the infix expression " $(A+B*C)/(D-E) + F$ " to postfix form using a stack. (8)  
 (ii) Write suitable algorithms to delete in the middle, and delete in the end of a doubly linked list. (8)  
 (OR)
- b (i) Explain any two operations of stack with the corresponding routines. (12)  
 (ii) Compare and contrast between stack overflow and stack underflow conditions. (4)

**PART C (1 X 8 = 8 MARKS)**

- 8.a (i) Show the effect of PUSH and POP operation on to the stack of size 10. The stack contains 10, 20, 22, 26, 28, and 30, with 30 being at top of the stack. Show diagrammatically the effect of

1.PUSH 46  
 2.PUSH 48  
 3.POP  
 4.POP  
 5.POP

Sketch the final structure of stack after performing the above said operations.

(8)

(OR)

- b (i) Write an algorithm to evaluate postfix expression. Trace the algorithm on the following input :  $623+-84/+23^+$  (all numbers are single digits)

(8)

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Data  
 Structure  
 Design  
 Engg.



**CONTINUOUS ASSESSMENT TEST- 1 OCTOBER 2022**

Programme & Branch : B.Tech. (CSE, IoT, CS)  
Semester : III Date & Session : 07/10/2022 AN  
Course Code & Name : CSD 2101 & Python Programming  
Duration : 90 minutes Maximum Marks : 50

**ANSWER ALL QUESTIONS**

**PART A (5 X 2 = 10 MARKS)**

1. Define Python Interpreter.
2. Find the output for following Python code  
string = "Crescent University"  
string [0]  
string [:]  
string [-2]  
string \* 2
3. Write a Python code to check whether a string is a palindrome or not.
4. List any four predefined functions in Python.
5. Differentiate clear() and remove() function in Python list.

**PART B (2 X 16 = 32 MARKS)**

- 6.a (i) Explain the different types of operators with suitable Python code. (16)  
(OR)
- b (i) Abdul went to KFC with his friends. He bought pizzas, puffs and cool drinks. Consider the following prices and GST:
  - Rs.75 / pizza, Rs.25 / puff and Rs.30 / cool drink.
  - SGST 9% and GGST 9%.Write a Python code to generate a bill for what Abdul has bought. (16)

- 7.a (i) Find the smallest number among the three numbers using Python code. (8)  
(ii) Explain any two types of function arguments with example code. (8)
- (OR)
- b (i) Write a Python code for the following list functions:  
• sort()  
• copy()  
• extend()  
• pop() (8)
- (ii) Illustrate the procedure to update the Python tuples and write with a suitable code. (8)

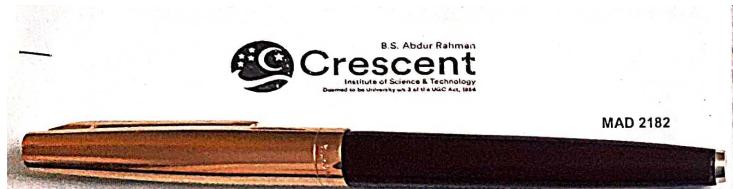
**PART C (1 X 8 = 8 MARKS)**

- 8.a Summarize the syntax and structure of the tuples in Python and discuss the different operations with suitable examples. (8)
- (OR)
- b. Assuming that a is True, b is True and c is False, what would be the values of the following expressions?  
• not a == b + c < a  
• a == b <= c == True  
• True <= False == b+c  
• a != b >= c == False (8)

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Python  
Programming

II Sem  
2nd



**CONTINUOUS ASSESSMENT TEST - 1 OCTOBER 2022**

Programme & Branch : B.Tech (Cyber Security , IOT)  
 Semester : III Date & Session : 13/10/2022 AN  
 Course Code & Name : MAD 2182 & Probability and Statistics  
 Duration : 90 minutes Maximum Marks : 50

**ANSWER ALL QUESTIONS**

**PART A (5 X 2 = 10 MARKS)**

1. If  $P(A) = 0.75$ ;  $P(B) = 0.2$  and  $P(A \cap B) = 0.42$ , can  $A$  and  $B$  be dependent even?
  2. What is the chance that a leap year, selected at random will contain 53 Mondays?
  3. If  $P(X = x) = \begin{cases} kx, & x = 1, 2, 3, 4, 5 \\ 0, & \text{otherwise} \end{cases}$  represents probability mass function. Find the constant  $k$ .
  4. The number of hardware failure of a computer system in a week of operation has the following probability mass function.
- |                |        |      |      |      |      |      |      |
|----------------|--------|------|------|------|------|------|------|
| No.of failures | : 0    | 1    | 2    | 3    | 4    | 5    | 6    |
| Probability    | : 0.18 | 0.28 | 0.25 | 0.18 | 0.06 | 0.04 | 0.01 |
- Find the mean number of failures in a week.
5. The number of monthly breakdowns of a computer is a random variable having a Poisson distribution with mean equal to 1.8. Find the probability that this computer will function for a month with only one break down?

**PART B (2 X 16 = 32 MARKS)**

- 6.a (i) In a bolt factory A, B and C manufacturer 20%, 50%, 30% of the total of their output and 5%, 4% and 8% are defective. A bolt is drawn at random and found to be defective. Find the probability that manufactured from (i) Machine A (ii) Machine B (iii) Machine C.
- (ii) For any two events  $A$  and  $B$ , prove that  $P(\bar{A} \cap B) = P(B) - P(A \cap B)$ . (4)

1/3



**MAD 2182**

**(OR)**

Calculate Arithmetic Mean, Median, Mode, Range and Co-efficient of range (16) for the following data:

Marks	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Number of Students	4	10	16	22	20	18	8	2	5

- 7.a (i) A random variable  $X$  has the following probability functions (10)

X	: 0	1	2	3	4	5	6	7
$P(X=x)$	: 0	$k$	$2k$	$2k$	$3k$	$k^2$	$2k^2$	$7k^2+k$

- (i) Find  $k$ .
- (ii) Evaluate  $P(X < 5)$ ,  $P(X \geq 5)$  and  $P(0 < X < 6)$ .
- (iii) Determine the cumulative distribution function of  $X$ .

- (ii) The amount of time, in hours, that a computer functions before breaking down is a continuous random variable with probability density function given

$$\text{by } f(x) = \begin{cases} \frac{1}{100} e^{-\frac{x}{100}}, & x \geq 0 \\ 0, & \text{Otherwise} \end{cases}$$

What is the probability that

- (i) A computer will function between 100 and 200 hours before breaking down.
- (ii) It will function less than 400 hours.

**(OR)**

- b (i) Find the moment generating function of Binomial distribution and hence find (10) mean and variance.  
 (ii) The number of personal computer (PC) sold daily at a computerworld is (6) uniformly distributed with a minimum of 2000 PC and a maximum of 5000 PC . Find the following:  
 (i) The probability that daily sales will fall between 2500 and 3000 PC  
 (ii) What is the probability that the computerworld will sell atleast 4000 PC's?

2/3

MAD 2182

**PART C (1 X 8 = 8 MARKS)**

- 8.a (i) State and prove addition law of probability. (4)  
(ii) If A and B are two events such that  $P(A) = \frac{1}{2}$ ,  $P(B) = \frac{1}{3}$  and  $P(A \cap B) = \frac{1}{5}$  (4)

then find the following :

- (i)  $P(A \cup B)$   
(ii)  $P(\bar{A} \cap B)$

**(OR)**

- b. State and prove memoryless property of Geometric distribution. (8)

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ALL THE BEST  
JNRS...  
DO WELL  
JUST MAKE  
SURE YOU DON'T  
GET ARREARS

- ♀ K ♀