SPPU In-Sem Offline Examination-April 2022

Class: S. E.   Branch: Artificial Intelligence and Data Science   Semester: II

Subject : Software Engineering   (Code: 210253)

Maximum Marks: 30   Duration: 60 Minutes   Date: 08/04/2022

Instructions:
1. Answer any three questions Q1 or Q2 and Q3 or Q4.
2. Assume Suitable data wherever necessary.
3. Figures to the right indicate full marks.
4. Draw neat & labelled diagram wherever necessary.

Q. No.	Question / Description	Marks	CO
1	(a) Define Software Engineering. How software engineering is different from hardware engineering.	5	1
	(b) Explain Unified process model with a neat diagram	5	1
	(c) Explain the principles of agile methodology.	5	1
	OR		
2	(a) Describe Software Engineering layers.	5	1
	(b) Explain with a neat diagram Incremental Process Model and state its advantages and disadvantages.	5	1
	(c) Explain following two: 1) Scrum 2) Adaptive software development(ASD)	5	1
3	(a) Explain Quality function deployment.	5	2
	(b) Explain functional and non functional requirements.	5	2
	(c) Draw a use case diagram for Library management system.	5	2
	OR		
4	(a) Explain multiple viewpoints in requirement engineering.	5	2
	(b) Define requirement model. Explain why do we say that the requirement model represents a snapshot of a system in time?	5	2
	(c) Draw a use case diagram for online Railway ticket booking system.	5	2

SPPU In-Sem Offline Examination-April 2022

Class: S.E.   Branch: AI&DS   Semester: II

Subject: Statistics   (Code: 217528)

Maximum Marks: 30   Duration: 60 Minutes   Date: 04/04/2022

Instructions:
1. Answer any three questions Q1 or Q2 and Q3 or Q4.
2. Assume Suitable data wherever necessary.
3. Figures to the right indicate full marks.
4. Draw neat & labelled diagram wherever necessary.

Q. No.	Question / Description	Marks	CO
1	(a) Define sampling. Explain stratified sampling.	5	1
	(b) Explain sampling without replacement.	5	1
	(c) Explain in brief the types of sampling.	5	1
	OR		
2	(a) Define finite and infinite population.	5	1
	(b) Explain the selection of sample size in stratified sampling.	5	1
	(c) Explain sample statistics.	5	1
3	(a) Draw histogram for the following frequency distribution.	5	2

Variable	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Frequency	5	3	20	25	23	21	13	6	2	1

Q. No.	Question / Description	Marks	CO
	(b) Calculate arithmetic mean for the following frequency distribution.	5	2

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
No. of students	5	7	9	17	9	7	4	2

Q. No.	Question / Description	Marks	CO
	(c) Define i) Combined geometric mean ii) Harmonic mean	5	2
	OR		
4	(a) Draw frequency polygon for following data by taking class interval of ten. 42, 57, 44, 60, 50, 61, 55, 58, 82, 37, 22, 33, 56, 61, 36, 72, 39, 38, 49, 32, 17, 37, 69, 43, 15	5	2
	(b) The mean of marks in English of 100 students in a class was 63. The mean of marks of girls was 76, while their number was 60. Find the mean of marks of boys in the class.	5	2
	(c) Define and explain mode.	5	2

SPPU In-Sem Offline Examination-April 2022

Class: SE   Branch: AI & DS   Semester: IV

Subject: Internet of Things   (Code: 217529)

Maximum Marks: 30   Duration: 60 Minutes   Date : 05/04/2022

Instructions to the candidates:
1. *Answer any two questions Q.1 or Q.2, Q.3 or Q.4*
2. *Assume suitable data wherever necessary.*
3. *Figures to the right indicate full marks.*
4. *Draw neat and labelled diagram wherever necessary.*

Q. No.		Question / Description	Marks	CO
1	a)	Draw and explain basic organization of computer system.	5	1
	b)	What is a bus? Define system bus.	5	1
	c)	Explain instruction cycle.	5	1
OR				
2	a)	Explain the various types of computers.	5	1
	b)	List the features of PCI bus.	5	1
	c)	What is Interrupt? Explain types of interrupt.	5	1
3	a)	Explain memory organization of 8086.	5	2
	b)	What is I/O interface? Define Input and Output ports.	5	2
	c)	Discuss control word format of 8255 with suitable diagram.	5	2
OR				
4	a)	Draw and explain Bit Set Reset mode of 8255.	5	2
	b)	What is ADC? List the features of ADC 0808.	5	2
	c)	Explain stepper motor interfacing.	5	2

SPPU In-Sem Offline Examination-April 2022

Class: SE   **Branch: AI & DS**   **Semester: II**

Subject: Data Structures and Algorithms (Code: 210252)

Maximum Marks: 30   **Duration: 60 Minutes**   **Date: 07/04/2022**

Special Instructions: Read the instructions carefully
1) Answer Q. No. 1 OR Q. No. 2 , Q. No. 3 OR Q. No. 4
2) Draw figure(s) wherever necessary.
3) Assume suitable data if necessary.

Q. No.		Question / Description	Marks	CO
1	a.	What is the probing in hash table ? What is linear probing? How does it differs from quadratic probing? Explain with suitable example.	5	CO1, CO2
	b.	Apply any one open addressing technique to resolve collision for the given set of values: 35, 36, 25, 47, 2501, 129, 65, 29, 16, 14, 99. Consider hash table with size 15.	5	CO2
	c.	What is Hash Function? Explain the following hash functions : i. Mid square ii. Modulo Division iii. Folding method iv. Multiplication method	5	CO1, CO2
OR				
2	a.	Explain skip list with suitable example.	5	CO1, CO2
	b.	Apply double hashing technique to resolve the collision for the given set of values: 4371, 1323, 6173, 4199, 4344, 9679, 1989. Consider hash table with size 10 and use the hash function $h(x)= X(mod\ 10)$	5	CO2
	c.	Explain the terms: i. Hash Table ii. Load Factor	5	CO1, CO2

		iii. Perfect hash function iv. Universal Hashing v. Open Hashing		
3	a.	Write pseudo-code for printing the elements of a binary search tree in ascending order non-recursively.	5	CO3
	b.	Determine a binary tree from given two traversals: Inorder Traversal -1 2 3 14 7 10 11 40 30 Postorder Traversal - 1 3 2 7 10 40 30 11 14	5	CO3
	c.	Explain how to convert general trees to binary tree with example	5	CO3
		OR		
4	a.	Write pseudo-code for performing level order traversal of a binary tree.	5	CO3

	b.	Determine binary tree from given two traversals:
		     Inorder : E A C K F H D B G
		
		     Preorder : F A E K C D H G B
			5	CO3

	c.	Explain binary tree representation with example.	5	CO3

SPPU In-Sem Offline Examination-April 2022

Class : SE   Branch : AI & DS   Semester : II

Subject : Management Information System   (Code : 217530)

Maximum Marks: 30   Duration: 60 Minutes   Date : 09/04/2022

Special Instructions:

1) Solve Q.1 or Q.2, Q.3 or Q.4.

2) Figures to the right indicate full marks.

3) Assume suitable data, whenever necessary.

Q. No.	Question / Description	Marks	CO
Q1	A) Define MIS. Describe role of MIS in an Organization.	5	CO1
	B) Summarize levels of management.	5	CO1
	C) Explain factors affecting the Rational Decision Making.	5	CO1
	OR		
Q2	A) List down functions of management.	5	CO1
	B) Describe Decision making model with suitable diagram.	5	CO1
	C) Explain "MIS : A support to the Management"	5	CO1
Q3	A) Explain types of Transaction Processing System with suitable diagram.	5	CO2
	B) Describe Integrated Information Systems.	5	CO2
	C) Describe Email and Instant Messaging in short.	5	CO2
	OR		
Q4	A) Describe Management Support System with suitable diagram.	5	CO2
	B) Explain system for Collaboration and Teamwork.	5	CO2
	C) Discuss Ethical and Social Issues in Information System.	5	CO2