SOMAIYA VIDYAVIHAR UNIVERSITY

26/02/2024

Maximum Marks: 30	**Semester: January 2024 – April 2024** **Examination: In-Semester Examination**	**Duration :1hr 30 min**
Programme code: 04		
Programme: B TECH	**Class:** TY	**Semester:** VI (SVU 2020/SVU 2023)
Name of the Constituent College: **K. J. Somaiya College of Engineering**	**Name of the department:** IT	
Course Code: 116U04C601	**Name of the Course:** Object Oriented Software Engineering	

Question No.		Max. Marks
Q1	**What is the significance of SRS document? Explain three functional and three nonfunctional requirements for the time tracking system. The problem definition is given below.** **Time Tracking System** Problem Definition: Companies need a way to track employee time and ensure accurate payroll processing. A time tracking system can help companies track employee time and streamline payroll processing. A time tracking system is a software application that helps companies track employee time and attendance. It includes features such as automated timesheet generation and a mobile app for remote time tracking and many more.	10
Q2	Explain incremental model with respect to following points: a. Need of Incremental model(02) b. Diagram with Working strategy of incremental model(03) c. Application/Example of incremental model(01) d. Advantages of incremental model(02) e. Disadvantages of incremental model(02)	10
Q3	What is SCI? Explain SCM process with diagram. OR Explain Risk projection. Build a risk table for online food delivery system.	10

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Maximum Marks 30	**Semester: January 2024 – May 2024** **Examination: In-Semester Examination**	**Duration :1.15 hrs.**
Programme code: 04 **Programme: IT**	**Class:** TY	**Semester:** VI (SVU 2020)
Name of the Constituent College: **K. J. Somaiya College of Engineering**	**Name of the department:** IT	
Course Code: 116U04C602	**Name of the Course: Modeling and Simulation**	

Question No.		Max. Marks
Q1	There is only one telephone in a public booth of a railway station. The following tables indicate the distributions of callers' arrival time and duration of the calls.	10

Time between arrivals (Minutes)	5	6	7
Probability	0.20	0.70	0.10

Call duration (Minutes)	2	3	4	5
Probability	0.15	0.6	0.15	0.1

Simulate for 10 arrivals of the current system. It is proposed to add another telephone to the booth. Justify the proposal based on the waiting time of callers.

OR

A small barbershop has only one checkout counter. Customers arrive at this checkout counter at random from 1 to 7 minutes apart. The service time varies from 1 to 5 minutes. Each possible value of inter arrival time and service time have the same probability of occurrence. Simulate the system for arrival of 10 customers. Analyze the system based on

1. Average waiting time
2. Probability that a customer waits in queue.

Assume random numbers for time between arrival/ inter arrival time and service time as given below:

Random Digits	109, 93,15, 948, 309, 235, 302, 727, 534
Random Digits	38, 64, 89, 10, 23, 96, 17, 91, 25, 5

Q2	Using the multiplicative congruential method, find the period of the generator for a= 13, m = 2^6 = 64 and X_0 = 1, 2, 3, and 4.	10

Q3	Define Static Simulation, Dynamic simulation, Primary activity, State of System and Model with respect to System. Give example for each with respect to Banking System.	10

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28/2/2024

Maximum Marks: 30	**Semester: January 2024 – April 2024** **Examination: In-Semester Examination**	**Duration : 01.15 Hrs**
Programme code: 04 **Programme: B.Tech in Information Technology**	**Class: TY**	**Semester: VI** **(SVU 2020/SVU 2023)**
Name of the Constituent College: **K. J. Somaiya College of Engineering**	**Name of the department:** **IT**	
Course Code: 116U04C603	**Name of the Course: Cloud Computing**	

Question No.		Max. Marks
Q1	Explain with neat diagrams CPU Virtualization terms: a. Para Virtualization b. Full Virtualization c. Hardware assisted virtualization OR Explain with neat diagrams in cloud computing: a. Resource Pooling b. Resource sharing c. Resource provisioning	15(5 marks each)
Q2	Explain SPI model in detail with example.	05
Q3	Compare Horizontal and vertical scaling with neat diagrams. Analyze and identify disadvantages associated to each of them.	10

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29/2/24

Maximum Marks: 30	Semester: January 2024- April 2024 Examination: In-Semester Examination	Duration : 1 Hr 15 Min
Programme code: 04 Programme: Information Technology	Class: TY	Semester: VI (SVU 2020)
Name of the Constituent College: K. J. Somaiya College of Engineering	Name of the department: IT	
Course Code: 116U04E612	Name of the Course: Vulnerability Analysis And Penetration Testing	

Question No.		Max. Marks
Q1	Discuss in brief security attack vectors/security threats (any TWO) a) Ransomware b) Phishing c) Host Threats d) Application Threats	10
Q2	Attempt Any ONE of the Following a) Conduct passive reconnaissance on an ABC company to gather details about ABC company's network architecture, employee information, technologies in use, or potential security weaknesses. Apply minimum 3 techniques. b) Conduct active reconnaissance on an ABC company to gather details about ABC company's network architecture, web technologies in use, or potential security weaknesses. Apply a minimum 2 techniques. c)	10
Q3	Attempt Following. Give 2 examples of each a) CVE databases b) Anonymous browsers c) Bad password d) Verbose failure messages e) Reasons for employing password change functionalities	10

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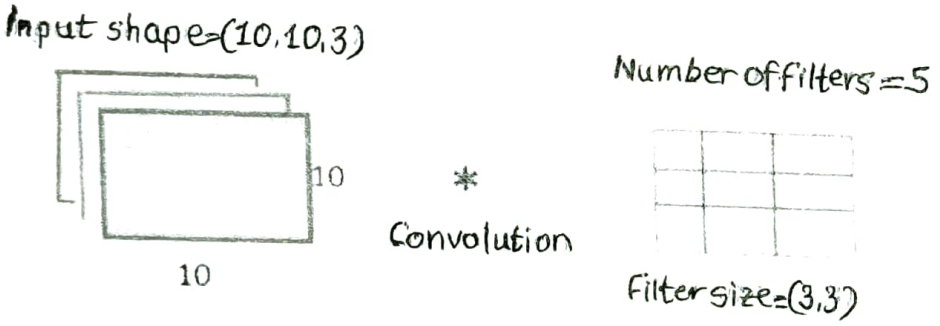
02/03/24

Maximum Marks: 30	Semester: January 2024- April 2024 Examination: In-Semester Examination	Duration: 1 Hr. 15 Mins
Programme code: 66 Programme: Honors in AI (IT)	Class: TY	Semester: VI (SVU 2020)
Name of the Constituent College: K. J. Somaiya College of Engineering		Name of the department: IT
Course Code: 116h66C601	Name of the Course: Deep Learning	

Question No.		Max. Marks
Q1	Describe any two resampling methods in detail. OR Explain Stochastic Gradient Descent algorithm. What are its advantages and disadvantages?	10
Q2	What are vanishing and exploding gradient problems? How to know if our model is suffering from the Exploding/Vanishing gradient problem? What are the solutions used to avoid these problems?	10
Q3	a) What is the output of convolution operation shown in the diagram below? 	05
	b) Briefly explain the two major steps of CNN i.e. Feature Learning/feature extraction and Classification.	05

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