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SCHOOL OF MANAGEMENT

End Semester Assessment – Apr/May 2025

Program :	All Applicable	Batch :	2024	Semester :	IV
Course Code & Name :	USMEI101/MINOR, Entrepreneurship- New Venture Management				
Maximum Marks :	30			Time:	1.30 Hrs

Course Outcomes (CO):
1. To identify key entrepreneurship concepts, theories and principles, including knowledge of different types of entrepreneurs.
2. To explain the product related opportunities and do feasibility checks.
3. Apply knowledge of the various perspectives of entrepreneurship that reflect sustainable value for business and society through launches.
4. Analyze the strategies of an existing business venture and leverage role of support organizations and small businesses.
5. To evaluate industry relevant success stories and technology developments.

Instructions : (Make necessary changes)
- *All questions are compulsory.*
- *Assume missing data suitably, if any.*
- *Draw well labelled diagrams wherever necessary*

QUESTIONS		CO	BTL	Marks
Q 1) Solve all questions.			**Max Marks: 05**	
a.	What are the characteristics of an entrepreneur?	CO1	B1	02
	What factors affect entrepreneurship growth?	CO1	B1	03
Q 2) Solve all questions.			**Max Marks: 05**	
a.	What is the role of an Incubator in a startup? What are the types of Business incubators?	CO2	B2	02
b.	What is a Patent? What are the requirements for a Patent?	CO2	B2	03
Q 3) Solve all questions.			**Max Marks: 05**	
a.	What are some of the Entry Strategies for a Startup?	CO3	B3	02
b.	b1. What are the steps to promote Entrepreneurship?	CO3	B3	03
	OR			
	b2. What is the mind mapping technique? Explain with an example	CO3	B3	03
Q 4) Solve all questions.			**Max Marks: 05**	
a.	What do you understand by MSMEs?	CO4	B4	02
b.	b1. What is the future outlook of MSMEs?	CO4	B4	03
	OR			
	b2. What is the role played by MSMEs today in India?	CO4	B4	03

Q 5) Solve any two questions.   **Max Marks: 10 (2*5)**

a.	What is the role support institutions play in India today? What are the challenges they have faced so far?	CO5	B5	05
b.	Who is your role model of a successful business around the world today & why?	CO5	B5	05
c.	What are the various ways of Idea generation and what role does Design Thinking play in Idea generation?	CO5	B5	05

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| Enrolment No. | SOE2320107 0 003 |

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SCHOOL OF ENGINEERING & TECHNOLOGY
End Semester Assessment – Apr/May 2025

Program:	SY B. Tech	Batch:	2024	Semester:	IV
Course Code & Name :	UBTCE212- Java Programming				
Maximum Marks :	30			Time:	1.30 Hrs

Course Outcomes (CO):
1. Understand and apply fundamental Java programming concepts to write simple Java programs.
2. Develop and implement object-oriented programming constructs such as classes, objects, methods, constructors, inheritance, and polymorphism to design modular and reusable Java applications.
3. Analyze and apply Java interfaces, packages, and exception handling mechanisms to build robust and modular software systems.
4. Implement multithreading concepts and establish database connections using JDBC to create concurrent and data-driven Java applications.
5. Design and manage data efficiently using Java collection frameworks, file handling mechanisms, and event-driven programming to develop real-world Java applications.

Instructions:
- *All questions are compulsory.*
- *Justify your answer with proper real time examples / java code / pseudocode*
- *Draw well labelled diagrams wherever necessary*

QUESTIONS		CO	BTL	Marks
Q 1) Solve all questions.		Max Marks: 05		
a.	Describe how break and continue keywords operate in Java. Illustrate your answer with code examples	CO1	B1	02
b.	Differentiate between JVM, JRE, and JDK. Represent their relationships using a labelled diagram.	CO1	B4	03
Q 2) Solve all questions.		Max Marks: 05		
a.	Construct labelled block diagrams for all types of inheritance supported in Java.	CO2	B5	02
b.	Compare default and parameterized constructors using relevant code examples.	CO2	B6	03
Q 3) Solve all questions.		Max Marks: 05		
a.	Define inner class in Java. Demonstrate with an example of a Local Inner Class.	CO3	B1	02
b.	b1. Distinguish between abstract classes and interfaces with proper examples in Java.	CO3	B2	03
	OR			
	b2. Write a Java program to demonstrate exception handling using try, catch, and finally blocks.	CO3	B2	03

		Max Marks: 05		
Q 4) Solve all questions.			B1	02
a.	Compare a process and a thread.	CO4		
b.	b1. Develop a Java program to create a thread by extending the Thread class.	CO4	B2	03
	OR			
	b2. Construct a Java program to update and delete records from a database using JDBC.	CO4	B2	03
Q 5) Solve any two questions.		**Max Marks: 10 (2*5)**		
a.	Write a java program to create the File class to • Checks if example.txt exists. • Creates the file if it doesn't exist. • Displays its absolute path, file size (in bytes), and whether it is readable/writable.	CO5	B2	05
b.	Develop a Java program using ArrayList<Integer> to: • Accept 5 integers from the user. • Remove the element at index 2. • Update the element at index 1. • Print the updated list.	CO5	B2	05
c.	Implement a Java program using the Stack class to: • Push 5 integers. • Pop top 2 elements. • Display stack after each operation.	CO5	B2	05

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SCHOOL OF ENGINEERING & TECHNOLOGY

End Semester Assessment – Apr/May 2025

Program :	SY B. Tech	Batch :	2024	Semester :	IV
Course Code & Name :	DataBase Management System (UBTCE210)				
Maximum Marks :	30			Time:	1.30 Hrs

Course Outcomes (CO):
1. Develop understanding concepts of Relational Database design and query languages.
2. Demonstrate effective Query processing and Transaction Processing.
3. Apply normalization for the development of application software's
4. Ability to design entity relationship and convert entity relationship diagrams into RDBMS and formulate SQL queries on the respect data
5. Ability to identify the data models for relevant problems

Instructions :
- -All questions are compulsory.
- - Assume suitable data wherever necessary.
- -Neat labelled diagrams must be drawn wherever necessary.
- -Figure to the right indicates full marks.

QUESTIONS		CO	BTL	Marks
Q 1) Solve all questions.		**Max Marks: 05**		
a.	Difference between Relational database RDBMS and NoSQL.	CO1	B1	02
b.	Draw an ER diagram for the Hospital management system database with 3 entities and 3 attributes for each entity. Specify the cardinality ratio on each relationship existing between entities	CO1	B4	03
Q 2) Solve all questions.		**Max Marks: 05**		
a.	List out the Normal forms in database normalization, and Explain Boyce-Codd Normal Form (BCNF).	CO2	B5	02
b.	Consider the schema given below and solve the query using Relational Algebra Suppliers(sID, sName, address) Parts(pID, pName, colour) 1. Find the names of all red parts. 2. Find the sIDs of all suppliers who supply a part that is red or green. 3. Find the names of all suppliers who supply a part that is red or green.	CO2	B4	03
Q 3) Solve all questions.		**Max Marks: 05**		
a.	Explain Indexing in Structural Query languages with suitable examples.	CO3	B2	02

b.	b1. Consider the following database schema to write queries in SQL. Student (student_id, name, dept_id, age) Department (dept_id, dept_name) Course (course_id, course_name, credits) Enrollment (student_id, course_id, grade) 1.Retrieve the names of students enrolled in Database Systems. 2.Calculate the average grade of students in the course Operating Systems. 3.Find the names of departments that have students aged 18 or less.	CO3	B4	03
	OR			
	b2.Consider the following database schema to write queries in SQL Doctor (doctor_id, name, specialty, salary) Patient (patient_id, name, age, city) Treatment (patient_id, doctor_id, treatment_date, fees) 1.Find the names of doctors who treated patients from "Mumbai." 2.Find the total fees collected by each doctor. 3.Retrieve the names of patients treated by doctors specializing in Cardiology.	CO3	B4	03

Q 4) Solve all questions.   **Max Marks: 05**

a.	Explain states of transactions with suitable example	CO4	B1	02
b.	b1.Check whether the given schedule S is conflict serializable or not. If yes, then determine all the possible serialized schedules:	CO4	B2	03

T1	T2	T3	T4
	R(A)		
		W(A)	
		COMMIT	
W(A)			
COMMIT			
	W(B)		
	R(C)		
	COMMIT		
			R(A)
			R(B)

	OR			
	b2.Explain about the shadow Copy Scheme in transaction management	CO4	B2	03

Q 5) Solve any two questions.   **Max Marks: 10 (2*5)**

a.	Analyze which of the following concurrency control protocols ensure both 2 conflict serializability and freedom from deadlock? Explain the following: a. 2-phase locking b. Time-stamp ordering	CO5	B4	05
b.	Differentiate between shared lock and Exclusive lock in concurrency control	CO5	B3	05
c.	Define a deadlock in DBMS. What are the necessary conditions for a deadlock to occur?	CO5	B2	05

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End Semester Assessment – Apr/May 2025

Program :	SY B. Tech	Batch :	2024-25	Semester :	IV
Course Code & Name :	Internet of Things (UBTCE215A/OE-II)				
Maximum Marks :	60			Time:	2.5 Hrs

Course Outcomes (CO):
1. Comprehend the fundamentals and need of IOT.
2. Apply IoT enabling technologies for developing IoT systems
3. Apply design methodology for designing and implementing IoT applications
4. Analyse IoT protocols for making IoT devices communication
5. Design cloud based IoT systems.

Instructions:
- All questions are compulsory.
- Assume missing data suitably, if any.
- Draw well labelled diagrams wherever necessary

QUESTIONS	CO	BTL	Marks
Q 1) Solve all questions.	Max Marks: 10		
a. Discuss the vision and emerging trends in the adoption of IoT.	CO1	B2	05
b. Describe the IoT functional blocks. Mention at least two real-life application areas of IoT.	CO1	B3	05
Q 2) Solve all questions.	Max Marks: 10		
a. Explain how IoT can be used to create a smart city.	CO2	B4	05
b. Briefly describe the key pillars of IoT.	CO2	B2	05
Q 3) Solve any two questions.	Max Marks: 10 (2*5)		
a. Distinguish between M2M and WSN Protocols.	CO3	B4	05
b. Explain RFID in detail.	CO3	B2	05
c. Write the characteristics and examples of Sensor Networks in Home Automation.	CO3	B2	05
Q 4) Solve any two questions.	Max Marks: 10 (2*5)		
a. Explain how SDN works in IoT Networks?	CO4	B3	05
b. How can GRPC (Google Remote Procedure Call) be used in an IoT-based healthcare system for remote patient monitoring? Explain how different components communicate.	CO4	B2	05
c. What are the different cloud storage models used in IoT systems? Briefly explain any two with examples.	CO4	B4	05
Q 5) Solve any two questions.	Max Marks: 20 (2*10)		

a. ✓	Summarize on IoT Security Model.	CO5	B2	10
b. ✓	Elaborate on the security requirements in IoT with examples. ~~Explain the challenges in IoT application design with relevant examples.~~	CO5	B6	10
c. ↖	Explain the challenges in IoT application design with relevant examples	CO5	B4	10

D-03

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End Semester Assessment – Apr/May 2025

Program :	SY B. Tech	Batch :	2024	Semester :	IV
Course Code & Name :	UBTCE219 Computer Organization & Architecture				
Maximum Marks :	30			Time:	1.30 Hrs

Course Outcomes (CO):

1. Students will learn the concepts of computer organization for several engineering applications.
2. Students will develop the ability and confidence to use the fundamentals of computer organization as a tool in the engineering of digital systems.
3. An ability to identify, formulate, and solve hardware and software computer engineering problems using sound computer engineering principle
4. To impart the knowledge on micro programming
5. Comprehend the concepts of advanced pipelining techniques.

Instructions : (Make necessary changes)
- *All questions are compulsory.*
- *Assume missing data suitably, if any.*
- *Draw well labelled diagrams wherever necessary*

QUESTIONS		CO	BTL	Marks
Q 1) Solve all questions.		Max Marks: 05		
a.	Explain the history of computers?	CO1	B2	02
b.	Solve 7*3 using Booth's Algorithm?	CO1	B5	03
Q 2) Solve all questions.		Max Marks: 05		
a.	Write a short note on DRAM?	CO2	B2	02
b.	Write the difference between RAM and ROM.	CO2	B3	03
Q 3) Solve all questions.		Max Marks: 05		
a.	Define Register Transfer Language?	CO3	B1	02
b.	b1.Compare the Register and Memory?	CO3	B3	03
	OR			
	b2.Explain any 2 Arithmetic Logic Shift in detail?	CO3	B2	03
Q 4) Solve all questions.		Max Marks: 05		
a.	List down types of addressing modes ?	CO4	B1	02

b.	b1.Illustrate i)Direct Addressing. ii) Index Addressing.	CO4	B2	03
	OR			
	b2.Differentiate between CISC and RISC?	CO4	B3	03

Q 5) Solve any two questions.   Max Marks: 10 (2*5)

a.	Explain Instruction Pipelining in detail with an example?	CO5	B2	05
b.	Difference between Programmed I/O and Interrupt driven I/O?	CO5	B3	05
c.	Write a short note on USB?	CO5	B2	05

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End Semester Assessment – Apr/May 2025

Program:	SY B. Tech	Batch:	2024	Semester:	IV
Course Code & Name:	UBTCE220 Applied Statistical Techniques				
Maximum Marks:	30			**Time:**	1.30 Hrs

Course Outcomes (CO):
1. Identify the advanced terms in statistics.
2. Explain the estimation & its techniques.
3. Apply knowledge of hypothesis techniques to test large and small samples.
4. Apply non-parametric tests on practical situations.
5. Analyze parametric and non-parametric inference.

Instructions:
- *All questions are compulsory.*
- *Assume missing data suitably, if any.*
- *Draw well labelled diagrams wherever necessary*

NotesSociety

QUESTIONS	CO	BTL	Marks
Q 1) Solve all questions.		**Max Marks: 05**	
a	Explain the concept of sampling in research. What are the different sampling techniques?	CO1	B2	02
b	It was decided to estimate prevalence of diabetes in KSA. He had limited resources. So, he divided entire KSA into 5 regions as north, south, east, west and central. Then he made 20 contiguous geographical areas (clusters) in each of these five regions. Then he selected two clusters at random from each of five regions. He found 5000 eligible individuals from these five selected areas. And he collected relevant data from all these individuals. a) What type of sampling method he used here? b) Why did he adopt this method?	CO1	B3	03
Q 2) Solve all questions.		**Max Marks: 05**	
a	What is confidence Interval. Explain the factors affecting the confidence interval.	CO2	B2	02
b	If a random sample of size n = 20 from a normal population with the variance $\sigma^2 = 225$ has the mean x = 64.3, construct a 95% confidence interval for the mean population mean μ?	CO2	B3	03
Q 3) Solve all questions.		**Max Marks: 05**	
a	What are Type I and Type II errors?	CO3	B2	02
b	b1. A company claims that the average battery life of their new smartphone is 12 hours. A consumer group tests 100 phones and finds the average battery life to be	CO3	B3	03

11.8 hours with a population standard deviation of 0.5 hours. At a 5% significance level, is there evidence to refute the company's claim?

<div style="text-align:center">OR</div>

b2. Determine if there is a significant difference in the average scores between the two teams. The following data is given: Team A: Score: 65, 68, 70, 63, 67 Team B: Score: 62, 66, 69, 64, 68 Use TTest?	CO3	B3	03

<div style="text-align:right">Max Marks: 05</div>

Q 4) Solve all questions.

a	How do you calculate the degrees of freedom for both the goodness-of-fit test and the test for independence?	CO4	B2	02
b	b1. A researcher wants to compare the performance of three diets on weight loss. The weight loss (in kg) for five individuals in each diet group is recorded: **Diet A Diet B Diet C** 5 4 6 6 5 7 4 3 5 7 6 8 5 4 6 Perform a **One-Way ANOVA** at a **5% significance level** to determine if there is a significant difference in weight loss among the diets. Calculate only Sum of Squares.	CO4	B3	03

<div style="text-align:center">OR</div>

b2. Suppose we want to know if gender has anything to do with political party preference. So, we poll 440 voters in a simple random sample to find out which political party they prefer. The results of the survey are provided in the table below.

	Republican	Democrat	Independent
Male	100	70	30
Female	140	60	20
Total	240	130	50

Calculate the Expected frequencies and Degree of freedom.

CO4	B3	03

<div style="text-align:right">Max Marks: 10</div>
<div style="text-align:right">(2*5)</div>

Q 5) Solve any two questions.

a	What is the relationship between the Mann-Whitney U test and the Wilcoxon rank-sum test?	CO5	B2	05
b	Wilcoxon test Worked Example: In order to investigate whether adults report verbally presented material more accurately from their right than from their left ear, a dichotic listening task was carried out. The data were found to be positively skewed. Number of words reported:	CO5	B3	05

Participant	Left ear	Right ear
1	25	32

<div style="text-align:right">(P.T.O)</div>

2	29	30				
3	10	8				
4	31	32				
5	27	20				
6	24	32				
7	26	27				
8	29	30				
9	30	32				
10	32	32				
11	20	30				
12	5	32				

What test should we use?

c	Non parametric test - Sign test for the following data 7,5,2,3,8,2,4,4,3,7,6,2,10 2,1,0,1,3,2,3,5,1,4,4,3,4, Significance Level $\alpha=0.05$ and One-tailed test.	CO5	B4	05