



Shri Shankaracharya Institute of Professional Management & Technology

DEPARTMENT OF INFORMATION TECHNOLOGY

Class Test – I

Session- July-Dec-2023

Month – Nov -2023

Sem- 3rd

Subject-Mathematics-III

Code-B000311(014)

Time Allowed:2 hrs.

Max Marks: 40

Note: -First question is Compulsory from PART I & II. Solve any 2 questions from PART I & II

Q.N.	Questions	Marks	Levels of Bloom's taxonomy	Cos
UNIT-I				
Q1	Form partial differential equation from $z = y^2 + 2f\left(\frac{1}{x} + \log y\right)$	[4]	Apply	CO1
Q2	Solve $(x^2 - y^2 - z^2)p + 2xyq = 2xz$	[8]	Apply	CO1
Q3	Solve Separation of variable $\frac{\partial u}{\partial x} = 2\frac{\partial u}{\partial t} + u$, where $u(x,0) = 6e^{-3x}$	[8]	Understanding	CO1
Q4	Solve $\frac{\partial^2 z}{\partial x^2} + \frac{\partial^2 z}{\partial x \partial y} - 6\frac{\partial^2 z}{\partial y^2} = y \cos x$	[8]	Understanding	CO1
UNIT- II				
Q1	Bessel's formula is most appropriate when p lies betweenand Write Bessel's formula.	[4]	Applying	CO2
Q2	From the following table, estimate the number of students who obtained marks between 40 and 45: Marks: 30-40 40-50 50-60 60-70 70-80 No. of st.: 31 42 51 35 31	[8]	Understanding	CO2
Q3	Given θ° : 0 5 10 15 20 25 30 $\tan \theta$: 0 .0875 .1763 .2679 .3640 .4663 .5774 Using Stirling's formula estimate the value of $\tan 16^\circ$	[8]	Understanding	CO2
Q4	Apply Bessel's formula to obtain y_{25} , given $y_{20} = 2854, y_{24} = 3162, y_{28} = 3544, y_{32} = 3992.$	[8]	Understanding	CO2



Shri Shankaracharya Institute of Professional Management & Technology

Department of Information Technology

Class Test – I Session- Jul – Dec, 2023 Month-November

**Sem- IT 3rd, Subject- Computer Architecture, Organization and Microprocessor,
Code- B033312(033)**

Time Allowed: 2 hrs Max Marks: 40

Note: - Question number 5 and 6 are mandatory, attempt any three from the rest.

Q.N.	Questions	Marks	Levels of Bloom's taxonomy	COs
1	Give a comprehensive overview of the different types of memory reference instructions.	[8]	Understanding	CO1
2	Provide a step-by-step explanation of the interrupt cycle, with an example to illustrate each step.	[8]	Analyze	CO1
3	Expand on the different stages of the instruction cycle and how they interact.	[8]	Understanding	CO1
4	Provide a comprehensive explanation of the common bus system and the various types of registers, including their hardware implementation and how they interact.	[8]	Understanding	CO1
5	Provide a hardware implementation and algorithm for the Booth algorithm, and use it to calculate the product of 14 and 23, which is 322.	[8]	Applying	CO2
6	Provide a hardware algorithm for the Division algorithm, and use it to calculate the division of (306) / (18), which is 17.	[8]	Applying	CO2



Shri Shankaracharya Institute of Professional Management & Technology

Department of Information Technology

Class Test – I Session- Jul – Dec, 2023 Month-November

**Sem- IT 3rd, Subject- Computer Architecture, Organization and Microprocessor,
Code- B033312(033)**

Time Allowed: 2 hrs Max Marks: 40

Note: - All questions are mandatory.

Q.N.	Questions	Marks	Levels of Bloom's taxonomy	COs
1	Give a comprehensive overview of the different types of memory reference instructions.	[8]	Understanding	CO1
2	Provide a step-by-step explanation of the interrupt cycle, with an example to illustrate each step.	[8]	Analyze	CO1
3	Expand on the different stages of the instruction cycle and how they interact.	[8]	Understanding	CO1
4	Provide a comprehensive explanation of the common bus system and the various types of registers, including their hardware implementation and how they interact.	[8]	Understanding	CO1
5	Provide a hardware implementation and algorithm for the Booth algorithm, and use it to calculate the product of 14 and 23, which is 322.	[8]	Applying	CO2
6	Provide a hardware algorithm for the Division algorithm, and use it to calculate the division of (306) / (18), which is 17.	[8]	Applying	CO2

Shri Shankaracharya Institute of Professional Management & Technology
Department of Electronics and Telecommunication Engineering
 Class Test – I Session- July-Dec, 2023 Month- November
Sem- ETC+IT+CSE(AI) 3rd Subject- Digital System Design- B000313(028)
 Time Allowed: 2 hrs Max Marks: 40

Note: - Q.1 is compulsory and attend any 4 from 2,3,4,5,6.

Q. NO.	Questions	Marks	Levels of Bloom's taxonomy	COs
1.	a) Find Gray Code equivalent of Hexadecimal number $(A2C)_{16}$. b) Find 5421 BCD equivalent of 83. c) Add 9384 and 4888 in BCD code. d) Convert $(6AE2)_{16} = (?)_{10} = (?)_2$?	[8]	Understanding	CO1
2.	Reduce the following Expression to the simplest possible POS and SOP Forms. $F_2 = \sum m(1, 5, 6, 12, 13, 14) + d(2, 4)$	[8]	Apply	CO1
3.	a) A signal error correcting code for a 11-bit group 01101110101? b) Test the following hamming code sequence for 11-bit message and correct it if necessary (101001011101011)?	[8]	Apply	CO1
4.	Obtain the minimal expression using Quine – Mc Cluskey method. $f(A, B, C, D) = \sum m(1, 5, 6, 12, 13, 14) + d(2, 4)$	[8]	Apply	CO1
5.	Design B C D Adder by using IC's 7483. Or Design Full adder by using 3:8 decoder.	[8]	Design	CO2
6.	(a) Implement a full Subtractor using 8 : 1 multiplexer. (b) Design 1:16 Demultiplexer by using 1:4 & 1:2 De multiplexer.	[8]	Design	CO2

Shri Shankaracharya Institute of Professional Management & Technology

Department of Information Technology

Class Test – I Session - July – Dec 2023 Month – November

Sem - 3rd Sem (B.tech IT) Subject- Computer Networks Code - B033314(033)

Time Allowed: 2 hrs. Max Marks: 40

Note: -All questions are compulsory

Q.N.	Questions	Marks	Levels of Bloom's taxonomy	COs
1.	Using Stop and Wait Protocol, sender wants to transmit 10 data packets to the receiver. Out of these 10 data packets, every 4 th data packets are lost. How many packets sender will have to send in total? Also draw diagram to analyse it.	[8]	Applying	CO2
2.	Elaborate the following terms: 1. TCP/IP 2. Data Communication Components 3. Data Transmission Mode 4. Optical Fiber	[8]	Understanding	CO1
3.	What do you understand by Computer Network? Also illustrate its types.	[8]	Understanding	CO1
4.	Differentiate OSI Model and TCP/IP Model.	[8]	Understanding	CO1
5.	Elaborate the following Protocols using diagrams and examples: 1. Stop and Wait, 2. Go back – N ARQ,	[8]	Understanding	CO2

Shri Shankaracharya Institute of Professional Management & Technology

Department of Information Technology

Class Test – I Session - July – Dec 2023 Month – November

Sem - 3rd Sem (B.tech IT) Subject- Computer Networks Code - B033314(033)

Time Allowed: 2 hrs. Max Marks: 40

Note: -All questions are compulsory

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**Shri Shankaracharya Institute of Professional
Management & Technology, Raipur
Department of Information Technology**

Class Test – I Session- July – Dec 2023 Month – Nov-2023

Sem- 3rd Sem Subject- Object Oriented Concepts & Code- B033313(033)

Programming using JAVA

Time Allowed: 2 hrs. Max Marks: 40

Note: Attempt any five questions and each carry equal marks.

Q.N.	Questions	Marks	Levels of Bloom's taxonomy	COs
1.	Describe the working of Java Virtual Machine (JVM) in the execution of java program.	[8]	Understand	CO1
2.	What is the purpose of the static keyword in Java, and how does it affect class members?	[8]	Applying	CO1
3.	Define class and object? Implement the concept of method overloading in java.	[8]	Applying	CO1
4.	Design a program to calculate the factorial of a number. Number should be taken at run time.	[8]	Applying	CO1
5.	Describe the purpose of constructors in Java. Explain its types with an example.	[8]	Applying	CO2
6.	Write a program to find the volume of a box having its side w, h, d means width, height and depth. Its volume is $v=w*h*d$ and also find the surface area given by the formula $s=2(wh+hd+dw)$. Use appropriate constructors for the above.	[8]	Applying	CO2

----- Best of Luck -----



**Shri Shankaracharya Institute of Professional
Management & Technology, Raipur
Department of Information Technology**

Class Test – I Session- July – Dec 2023 Month – Nov-2023

Sem- 3rd Sem Subject- Object Oriented Concepts & Code- B033313(033)

Programming using JAVA

Time Allowed: 2 hrs. Max Marks: 40

Note: Attempt any five questions and each carry equal marks.

Q.N.	Questions	Marks	Levels of Bloom's taxonomy	COs
1.	Describe the working of Java Virtual Machine (JVM) in the execution of java program.	[8]	Understand	CO1
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