



## Shri Shankaracharya Institute of Professional Management & Technology

### Department of Information Technology

Class Test – I Session- Jul – Dec, 2022 Month-December

Sem- IT 3<sup>rd</sup>, 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
<b>Unit I</b>				
A.	Can you differentiate computer organization and computer architecture.	[4]	Understanding	CO1
B.	Elaborate interrupt cycle.	[8]	Understanding	CO1
C.	Enlighten common bus system. Also various types of registers.	[8]	Understanding	CO1
<b>Unit II</b>				
A.	Enlighten addition and subtraction of fixed point number with algorithm and appropriate example.	[4]	Understanding	CO2
B.	Perform the operation: $(17) \times (18) = 306$ With Booth algorithm with signed magnitudes. Also, show the hardware implementation and hardware algorithm.	[8]	Applying	CO2
C.	Perform the operation: $(322) / (14) = 23$ With Division algorithm with signed magnitudes. Also, show the hardware implementation and hardware algorithm.	[8]	Applying	CO2



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

Class Test – I Session- July – Dec 2022 Month – Dec

**Sem- 3<sup>rd</sup> Sem Subject- Object Oriented Concepts & Code- B033313(033)**

Programming using JAVA

Time Allowed: 2 hrs. Max Marks: 40

*Note: Attempt any five question and each carry equal marks.*

Q.N.	Questions	Marks	Levels of Bloom's taxonomy	COs
1.	Describe the working of JVM. How does JVM offer security to Java program?	[8]	Understand	CO1
2.	Illustrate the features of the java.	[8]	Understand	CO1
3.	Describe the concept of "static" keyword in java with suitable example.	[8]	Applying	CO1
4.	Brief discussion on the concept of "this" in java with an example.	[8]	Applying	CO1
5.	Write a program to accept a number from user and print the number in reverse order. Also find the sum of all digits in the number.	[8]	Applying	CO1
6.	Define class and object? Implement the concept of method overloading in java.	[8]	Applying	CO1

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



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**Shri Shankaracharya Institute of Professional Management & Technology**

**Department of Computer Science & Engineering**

Class Test – I Session – July – Dec 2022 Month - December

**Semester – CSE (AI), ET & IT III Subject – Mathematics III Code – B000311(014)**

Time Allowed: 2 Hours

Maximum Marks: 40

**Note: Solve Any 5 Questions**

Q. N.	Questions	Marks	Level of Bloom's Taxonomy	COs
1.	The population of a town is as follows: Year :            1941   1951   1961   1971   1981   1991 Population:       20     24     29     36     46     51 Estimate the population increase during the period 1946 to 1986. Do all the calculation for 2 decimal places.	[8]	Applying	CO5
2.	Find Cos31 by Stirling's & Cos35 by Bessel's formula. x :     10     20     30     40     50 Cosx : 0.9848   0.9397   0.8660   0.7660   0.6428	[8]	Applying	CO5
3.	(i) Apply Lagrange's interpolation formula to find interpolating polynomial $f(x)$ satisfying the following data. (ii) Compute $f(2)$ , by applying Newton's Divide difference formula. x :     0     1     3     4 f(x):   -12   0     6     12	[4+4]	Applying	CO5
4.	(i) The probability density function of a continuous random variable $f(x) = \begin{cases} \frac{k}{x^3}, & 5 \leq x \leq 10 \\ 0, & \text{Otherwise} \end{cases}$ Find value of k. (ii) Find the standard deviation for the following discrete probability distribution: x:     8     12     16     20     24 p(x): 1/8   1/6   3/8   1/4   1/12 Do all the calculation for 2 decimal places.	[4+4]	Applying	CO4
5.	The frequency of the accidents per shift in a factory is as shown below: Accidents per shift :     0            1            2            3            4 Frequency                 : 180        92        24        3        1  Calculate mean number of accidents and fit Poisson's distribution. Do Calculations for 2 places of decimals.	[8]	Applying	CO4
6.	Articles are classified in three categories, 60% are less than 50, 35% are in the range 50-60, and only 5% are greater than 60. If this classification follows normal distribution, then find mean and standard deviation.	[8]	Applying	CO4

## Shri Shankaracharya Institute of Professional Management & Technology

### Department of Information Technology

Class Test – I Session - July – Dec 2022 Month – December

Sem - 3<sup>rd</sup> (B.tech IT) Sem 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 <sup>th</sup> 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. Optical Fiber 3. FDM 4. Data Transmission Mode	[8]	Understanding	CO2
3.	What do you understand by Computer Network? Also illustrate its types.	[8]	Understanding	CO1
4.	Consider the use of 10 K-bit size frames on a 10Mbps satellite channel with 270 ms delay. What is the link utilization for stop and wait ARQ technique assuming $P=10^{-3}$ ?	[8]	Applying	CO2
5.	Elaborate the following Protocols using diagrams and examples: 1. Stop and Wait, 2. Go back – N ARQ,	[8]	Understanding	CO1

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### Department of Information Technology

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**Shri Shankaracharya Institute of Professional Management & Technology**  
**Department of Electronics and Telecommunication Engineering**  
Class Test – I Session- July-Dec, 2022 Month- December  
**Sem- ET&T+IT+CSE(AI) 3<sup>rd</sup> 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 647 and 482 in 8421 BCD code. d) Using 9's complement, subtract $72532-3250$ .	[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) Devise 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 Explain Look ahead carry generator.	[8]	Design	CO2
6.	(a) Implement a full adder using 8 : 1 multiplexer. (b) Design 16:1 multiplexer by using 4:1 multiplexer.	[8]	Design	CO2