

SILVEROAK COLLEGE OF ENGINEERING AND TECHNOLOGY**BE - SEMESTER-IV • MID SEMESTER-I EXAMINATION – Summer2019****SUBJECT: Operating System (2140702) (CE/IT)**

DATE: 28-01-2019

TIME: 2:15 pm to 3:45 pm

TOTAL MARKS: 40

Instructions: 1. All the questions are compulsory.
2. Figures to the right indicate full marks.
3. Assume suitable data if required.

- Q.1 (a) Give the difference between a Process and a Program [03]
(b) Define : 1) Multiprogramming, 2) Multitasking, and 3) Distribute OS [03]
(c) Explain PCB. Discuss its major fields [04]
- Q.2 (a) List out the different Operating System Services and explain each in brief. [06]
(b) What is thread and what are the differences between user level threads and kernel supported threads? Under what Circumstances is one type “better” than the other? [05]
(c) What is average waiting time and average turnaround time [04]
of all process for FCFS. The processes are assumed to have arrived in the order P1, P2,P3, P4, P5 all at time=0.

PROCESS	BRUST TIME
P1	8
P2	1
P3	3
P4	2
P5	5

OR

- Q.2 (a) Difference between Micro kernel and Monolithic Kernel [06]
(b) What is scheduler? Explain types of scheduler. [05]
(c) What is average waiting time and average turnaround time [04]
of all process for SJF with Non-Preemptive mode.

Process	Arrival Time	Burst Time
P1	6	1
P2	3	3
P3	4	6
P4	1	5
P5	2	2
P6	5	1

- Q.3 (a) What is process? Explain Process State Transition Diagram in detail. [06]
(b) What is average waiting time and average turnaround time [05]
of all process for Round Robin. Consider Time Quantum = 2.

Process	Arrival Time	Burst Time
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P1	0	4
P2	1	5
P3	2	2
P4	3	1
P5	4	6
P6	5	3

(c) Define: 1) Race Condition, 2) Mutual Exclusion, 3) Throughput, 4) Critical Section [04]

OR

Q.3 (a) What is system call? What is interrupt? How it is handled by OS? [06]

(b) What is average waiting time and average turnaround time of all process for Round Robin. Consider Time Quantum = 3. [05]

Process	Arrival Time	Burst Time
P1	5	5
P2	4	6
P3	3	7
P4	1	9
P5	2	2
P6	6	3

(c) Write short notes on following: (i)Multithreading [04]

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SILVER OAK COLLEGE OF ENGINEERING & TECHNOLOGY
ADITYA SILVER OAK INSTITUTE OF TECHNOLOGY
BE - SEMESTER-VII • MID SEMESTER-I EXAMINATION – SUMMER 2019
SUBJECT: Object Oriented Programming with C++ (2140705) (CE/IT)

DATE: 31-01-2019

TIME: 02:15 pm to 03:45 pm

TOTAL MARKS: 40

- Instructions:**
1. Q. 1 is compulsory.
 2. Figures to the right indicate full marks.
 3. Assume suitable data if required.

- Q.1 (a) Explain the basic characteristics of Object Oriented Programming. [03]
 (b) Explain keywords: private, protected and public. [03]
 (c) Describe Return by reference in C++ with suitable example. [04]
- Q.2 (a) Explain Types of constructors with example. [06]
 (b) Write a program to display use of function overloading to calculate area of circle, square and rectangle. [05]
 (C) What is Reference variable? What is its major use? Give Example [04]

OR

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SILVER OAK COLLEGE OF ENGINEERING & TECHNOLOGY
ADITYA SILVER OAK INSTITUTE OF TECHNOLOGY
BE - SEMESTER-VII • MID SEMESTER-I EXAMINATION – SUMMER 2019
SUBJECT: Object Oriented Programming with C++ (2140705) (CE/IT)

DATE: 31-01-2019

TIME: 02:15 pm to 03:45 pm

TOTAL MARKS: 40

- Instructions:**
1. Q. 1 is compulsory.
 2. Figures to the right indicate full marks.
 3. Assume suitable data if required.

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OR

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- Q.2 (a) Write a program to display constructor overloading. [06]
(b) Explain with example: Static variable, Static functions. [05]
(c) Explain Functions. Explain function prototyping with example. [04]

- Q.3 (a) Explain Friend function and its characteristics with example [06]
(b) What is Type conversion? Explain Basic to class type conversion with example. [05]
(c) Describe default argument with suitable example. [04]

OR

- Q.3 (a) What is Inline Function? In which Situation Inline Function may not work? How does an inline function differ from a preprocessor macro? Write program using Inline Function to find largest of three numbers. [06]
(b) Write a program to overload unary - (minus) operator. [05]
(c) Difference between object oriented programming and procedure oriented programming.(Min 7 [04]
differences)

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SILVER OAK COLLEGE OF ENGINEERING & TECHNOLOGY**ADITYA SILVER OAK INSTITUTE OF TECHNOLOGY****BE - SEMESTER-IV • MID SEMESTER-I EXAMINATION - WINTER 2019****SUBJECT: NUMERICAL AND STATISTICAL METHODS (2140706) (CE/IT)**

DATE: 01-02-2019

TIME: 2:15 Pm to 3:45 Pm

TOTAL MARKS: 40

Instructions: 1. All the questions are compulsory.
2. Figures to the right indicate full marks.
3. Assume suitable data if required.

Q.1* (a) If $\pi = \frac{22}{7}$ is approximated as 3.14, find the absolute, relative and percentage errors. **[03]**

(b) Use the Gauss Jordan Method to solve the equations: **[03]**

$$\begin{aligned}x + y + z &= 9 \\2x - 3y + 4z &= 13 \\3x + 4y + 5z &= 40.\end{aligned}$$

(c) Explain Bisection method geometrically and using it find roots of the equation $x^3 - x - 11 = 0$ for three iterations. **[04]**

Q.2 (a) Apply Budan's theorem to find the number of roots of the equation **[06]**

$$x^5 + x^4 - 4x^3 - 3x^2 + 3x + 1 = 0. \text{ in the interval } [-2,-1], [0,1], [1,2].$$

(b) Find a root of $x^3 - x - 1 = 0$ up to three decimal places using Newton-Raphson method. **[05]**

(c) Test the convergence condition for the equation $x = \frac{1}{3}(\cos x + 1)$ in the interval (0,1) and then solve the equation using successive approximation method correct up to three places of decimals taking initial guess as 0.5. **[04]**

OR

Q.2 (a) Using Secant method, solve $6x^3 - 2x^2 + 9x - 3 = 0$ correct up to three decimal places. **[06]**

(b) By Newton's divided difference formula find $f(10.5)$. **[05]**

x	10	11	13	17
$f(x)$	2.3026	2.3979	2.3979	2.8332

(c) Using method of False position, compute the real root of the equation **[04]**

$$x \log_{10} x - 1.2 = 0 \text{ correct up to three decimal places.}$$

Q.3 (a) Apply Gauss-Seidel method to solve the following system of equations: **[06]**

$$\begin{aligned}10x - 2y - z - w &= 3, \\-2x + 10y - z - w &= 15 \\-x - y + 10z - 2w &= 27 \\-x - y - 2z + 10w &= -9\end{aligned}$$

(b) Find polynomial using Lagrange's interpolation from the table **[05]**

x	0	1	4	5
$f(x)$	1	3	24	39

(c) The population of a town was as given. Estimate the population for the year 1925. **[04]**
using appropriate interpolation method

Year : (x)	1891	1901	1911	1921	1931
Population: (y)	46	66	81	93	101

OR

Q.3 **(a)** Find the dominant Eigen value of $\begin{bmatrix} 2 & -1 & 1 \\ -1 & 3 & 2 \\ 1 & 2 & 3 \end{bmatrix}$, using $x_0 = \begin{bmatrix} 1 \\ 1 \\ 1 \end{bmatrix}$. **[06]**

(b) Write the iterative scheme to solve simultaneously a system of three linear algebraic equations using Gauss-Jacobi method with required condition. Apply the scheme to solve the following system : **[05]**

$$\begin{aligned}x + 5y - 3z &= 18 \\9x - 2y + z &= 50 \\-2x + 2y + 7z &= 19.\end{aligned}$$

(c) Solve the system using partial pivoting by Gauss elimination method. **[04]**

$$\begin{aligned}10x + x_2 + x_3 &= 12 \\2x_1 + 2x_2 + 10x_3 &= 14 \\2x_1 + 10x_2 + x_3 &= 13\end{aligned}$$

SILVER OAK COLLEGE OF ENGINEERING AND TECHNOLOGY**BE - SEMESTER-IV • MID SEMESTER-I EXAMINATION – SUMMER 2019****SUBJECT: COMPUTER ORGANIZATION (2140707) (CE/IT)**

DATE: 30/01/2019

TIME: 02:15 PM to 03:45 PM

TOTAL MARKS: 40

- Instructions:** 1. All the questions are compulsory.
 2. Figures to the right indicate full marks.
 3. Assume suitable data if required.

- Q.1 (A) Define register transfer language. Draw and explain the block and timing diagram for transfer of data from R1 to R2 when control P = 1. [03]
- (B) Explain the following terms: [03]
 (1) Pseudo-instruction (2) Address Symbol Table (3) Assembler
- (C) Represent $(8620)_{10}$ in [04]
 (1) Binary (2) Octal (3) Hexa code.
- Q.2 (A) Draw the block diagram of 4-bit arithmetic circuit and explain it in detail. [06]
- (B) Draw and explain the flowchart for Instruction Cycle. [05]
- (C) Write an ALP for swapping two numbers. Indicate the comments also. [04]

OR

- Q.2 (A) Demonstrate the process of Second Pass of Assembler using a suitable diagram [06]
- (B) Draw and explain flow chart of Interrupt Cycle. [05]
- (C) Design and explain a common bus system for four register each of 4 bit using multiplexer. [04]
- Q.3 (A) Explain Address Sequencing process in a microprogrammed control unit using suitable diagram. [06]
- (B) Explain the difference between hard wired control and micro programmed control. Give microinstruction format. [05]
- (C) Explain following instructions: (1) AND (2) BUN (3) STA (4) ISZ [04]

OR

- Q.3 (A) Explain Microprogram Sequencer for a control memory using a suitable block diagram [06]
- (B) Write an assembly program to multiply two positive numbers. [05]
- (C) Define Following Terms: [04]
 1) Computer Organization 2) Computer Architecture
 3) Accumulator 4) Hardwired control

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- | | |
|--------------------------|--------------------------|
| 1) Computer Organization | 2) Computer Architecture |
| 3) Accumulator | 4) Hardwired control |
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SILVER OAK COLLEGE OF ENGINEERING AND TECHNOLOGY
BE - SEMESTER-IV • MID SEMESTER-I EXAMINATION – SUMMER 2019
SUBJECT: COMPUTER ORGANIZATION (2140707) (CE/IT)

DATE: 30/01/2019

TIME: 02:15 PM to 03:45 PM

TOTAL MARKS: 40

- Instructions:** 1. All the questions are compulsory.
 2. Figures to the right indicate full marks.
 3. Assume suitable data if required.

- Q.1 (A) Define register transfer language. Draw and explain the block and timing diagram for transfer of data from R1 to R2 when control P = 1. [03]
 (B) Explain the following terms: [03]
 (1) Pseudo-instruction (2) Address Symbol Table (3) Assembler
 (C) Represent $(8620)_{10}$ in [04]
 (1) Binary (2) Octal (3) Hexa code.
- Q.2 (A) Draw the block diagram of 4-bit arithmetic circuit and explain it in detail. [06]
 (B) Draw and explain the flowchart for Instruction Cycle. [05]
 (C) Write an ALP for swapping two numbers. Indicate the comments also. [04]

OR

SILVER OAK COLLEGE OF ENGINEERING & TECHNOLOGY**ADITYA SILVER OAK INSTITUTE OF TECHNOLOGY****BE - SEMESTER-IV • MID SEMESTER-I EXAMINATION – SUMMER 2019****SUBJECT: COMPUTER NETWORKS (2140709) (CE/IT)**

DATE: 29-01-2019

TIME: 02:15 am to 03:45 pm

TOTAL MARKS: 40

- Instructions:**
1. All the questions are compulsory.
 2. Figures to the right indicate full marks.
 3. Assume suitable data if required.

- Q.1 (a) Define: 1) Bandwidth 2) Internet Protocol 3) Throughput [03]
 (b) User Datagram Protocol is suitable for video streaming and online gaming. Justify. [03]
 (c) Difference between connection oriented and connectionless protocol. [04]

- Q.2 (a) Draw the layered architecture of the OSI reference model and explain the functionality of each layer. [06]
 (b) What is delay? Explain different types of delay. [05]
 (c) Difference between circuit switching, packet switching and Message Switching. [04]

OR

- Q.2 (a) What is a network topology? List down its different types and explain any three types of network topology with advantages and disadvantages. [06]
 (b) Explain HTTP GET and HTTP POST method in detail. [05]
 (c) Compare different types of networks based on geography (LAN, MAN, WAN). [04]

- Q.3 (a) Explain the UDP Segment structure and justify the importance of its field values. List applications of UDP. [06]
 (b) Discuss transport layer multiplexing and de-multiplexing concept. [05]
 (c) List different types of guided and unguided media. Explain different types of unguided media. [04]

OR

- Q.3 (a) What is WWW and HTTP? Differentiate its persistent and non-persistent types with the request-response behavior of HTTP. [06]
 (b) List and explain the services provided by the transport layer. [05]
 (c) Explain the concept of Cookies and its components with suitable example. [04]

