

OBJECTIVES

Management Science is introduced to students with a specific purpose of providing them a better orientation of management, organizational structures, operations management, materials and marketing management, Human resource management, project management, strategic management and new management practices. This subject shows how to do thing in every sphere of activity including industry and academics

UNIT - I INTRODUCTION TO MANAGEMENT AND ORGANIZATION			
Part - A (Short Answer Questions)			
S. No	Questions	Blooms Taxonomy Level	Course Outcome
1	Define management	Understand	1
2	Discuss the importance of management?	Understand	1
3	Write about the leader ship styles?	Apply	1
4	Write the advantages of departmentation?	Understand	1
5	Explain about types of organization?	Understand	1
6	Describe nature of management?	Remember	1
7	Give two examples of modern organization?	Apply	1
8	Discuss about the responsibilities of management?	Apply	1
9	Give the structure of organization?	Apply	2
10	Discuss about the importance of approaches of management?	Understand	2
11	Explain the concepts related to organization?.	Apply	1
12	Discuss about the centralization in an organization?	Apply	1
13	Write about autocratic leadership style?	Apply	1
14	Explain about the concept of theory X?	Understand	2
15	Explain about the lower level of management?	Understand	2
Part - B (Long Answer Questions)			
1	Explain Douglas McGregor's theory x and theory?	Remember	1
2	Explain Hertzberg two factor theory of motivation- leadership styles social responsibilities of management?	Understand	1
3	Explain evolution of management thought or theory of management which is universally applicable? Give your reasons?	Evaluate	1

4	Distinguish between centralization and decentralization?	Understand	1
5	Explain basic concepts related to organization – departmentation and decentralization	Remember	1
6	Discuss briefly about the systems approach to management?	Understand	1
7	Good organization design is a function of a number of factors including the environment, technology, size of the company and the philosophy of the central management.	Understand	2
8	Explain types and evaluation of mechanistic and organic structures of organization and suitability design?	Understand	2
9	What is the contribution of Henry Fayol to the management process? Are his administrative principles strictly enforceable in the current	Evaluate	3
10	According to Taylor’s scientific management approach bring to the process of management? Did it change the value of time? If so, in what way?	Evaluate	3
Part - C (Analytical Questions)			
1	Give examples for modern and traditional organization.	Remember	1
2	Describe briefly about the different approaches carried in an organization with suitable examples?	Understand	1
3	Explain the real life example of a leader and what is the role played in an organization?	Analyze	2
4	Discuss about sustainability of an organization and how runs in the society?	evaluate	3
UNIT - II TYPICAL EMBEDDED SYSTEM			
Part - A (Short Answer Questions)			
1	Describe the components used as the core of an embedded system?	Understand	4
2	Give the difference between microprocessor and microcontroller?	Understand	4
3	Define is digital signal processing (DSP)?	Understand	4
4	Define is processor architecture?	Understand	4
5	Define programmable logic device?	Understand	5
6	Write the difference between RISC and CISC processors?	Analyze	5
7	Write the difference between PLD and ASIC?	Analyze	5
8	Write the difference between masked ROM and OTP?	Analyze	6
9	Discuss the different types of RAM used for embedded system design?	Apply	6
10	Define SRAM cell?	Understand	6
11	Define DRAM cell?	Understand	6
12	Define Relay? What are the different types of relays are available?	Understand	6
13	Define is PPI device?	Understand	6
14	Write is the difference between I2C and SPI communication interface?	Analyze	6
15	Write the merits and limitations of the RS232 interface?	Evaluate	6
16	Write the merits and limitations of the IEEE1394 interface over USB?	Understand	6
Part - B (Long Answer Questions)			
1	Explain the components of typical embedded systems in detail?	Evaluate	4
2	Which are the components used as the core of an embedded systems? Explain the merits and drawbacks?	Understand	4
3	What is the difference between microprocessor and microcontroller? explain the role of micro processors and micro controllers in	Understand	4
4	What is digital signal processing (DSP)? Explain the role of DSP in embedded system design?	Evaluate	4

5	What is processor architecture? What is the different processor architectures available processor/controller design? Give an example?	Evaluate	4
6	What is programmable logic device? What are different types of PLDs? Explain the role of PLDs in embedded system design?	Understand	5
7	What are the different types of memories used in embedded systems design? Explain the role of each?	Analyze	5
8	What are the different types of memories used for program storage in embedded systems design?	Analyze	5
9	What are the advantages of FLASH over other program storage memory in Embedded system design?	Understand	5
10	What is sensor? Explain its role in embedded system design? Illustrate with an example?	Evaluate	6
11	What is actuator? Explain its role in embedded system design? Illustrate with an example?	Evaluate	6
12	Explain the different factors that needs to be consider in the selection of memory for embedded system?	Apply	6
13	What are differences between general purpose processor and application specific instruction set processors with an example?	Understand	6
14	a. Explain the on different onboard communication interface in brief? b. Explain the on different external communication interface in brief?	Apply	6
15	Explain the sequence of operation for communicating with an I2C slave device?	Apply	6
16	Explain the RS 232 serial interface in detail?	Apply	6
Part - C (Analytical Questions)			
1	Draw the interfacing diagram for connecting an LED to the port pin of a microcontroller. The LED is turned ON when the microcontroller port pin is at Logic 0.	Apply	6
2	Explain the sequence of operation for communicating with 1 wire slave device	Evaluate	6
3	Write a C program to interface 7 segment LED display to microcontroller 8051	Apply	6
4	Write a C program to interfacing matrix keyboard to microcontroller 8051	Apply	6
UNIT - III EMBEDDED FIRMWARE			
Part - A (Short Answer Questions)			
1	Define Assembly Level Language?	Remember	7
2	Discuss about format of the assembly level language?	Remember	7
3	What is absolute object file?	Understand	7
4	Write the difference between compiler and cross compiler?	Understand	7
5	Define inline assembly?	Analyze	7
6	Give the limitations of the high level language based development?	Analyze	7
7	Write short notes on Linker and Locater?	Understand	7
8	Discuss about the object to hex file converter?	Understand	7
Part - B (Long Answer Questions)			
1	What is embedded firmware? What are the different approaches available for embedded firmware development?	Understand	8
2	Explain the role of RESET circuit in embedded system?	Analyze	7
3	Explain the role of Real Time Clock in embedded system?	Analyze	7
4	Explain the role of Watch dog Timer in embedded system?	Evaluate	7
5	Explain the role of Brown out protection circuit in embedded system?	Evaluate	7
6	Explain the various steps involved in the assembling of an assembly language program?	Evaluate	8
7	Explain the advantages of Assembly level language based on embedded firmware development?	Evaluate	8

8	Explain the high level language based on embedded firmware development technique?	Apply	8
9	Explain about source file to object file translation in the assembly language based development?	Apply	8
10	Explain about library file creation and usage in the assembly language based development?	Evaluate	8
11	Write the advantages and drawbacks of assembly language based development?	Understand	8
12	Write the advantages and limitations of high language based development?	Understand	8
13	Explain about mixing assembly with high level language (assembly language with C)?	Apply	8
14	Explain about mixing high level language with assembly (C with assembly language)?	Apply	8

Part - C (Analytical Questions)

1	Give the examples for situations demanding mixing of C with assembly? Explain the techniques for mixing of C with assembly?	Apply	8
2	Give the examples for situations demanding mixing of assembly with C? Explain the techniques for mixing assembly with C?	Apply	8

**UNIT - IV
RTOS BASED EMBEDDED SYSTEM DESIGN**

Part - A (Short Answer Questions)

1	Define is an operating system?	Understand	9
2	Define kernel?	Understand	9
3	Discuss about kernel space and user space?	Understand	9
4	Define monolithic and micro kernel?	Understand	9
5	Define task control block?	Understand	9
6	Define virtual memory?	Understand	9
7	Analyze how accurate time management is achieved in real time kernel?	Analyze	9
8	Define process life cycle?	Understand	9
9	Define process control block?	Understand	9
10	Analyze how threads and process are related?	Analyze	9
11	Give the difference between threads and process in detail?	Understand	10
12	Give the comparison between multitasking, multiprogramming, multi processing?	Analyze	10
13	Discuss all activates are involved in the context switching?	Evaluate	10
14	Define task scheduling?	Understand	10
15	Explain the different queues are associated with process scheduling?	Evaluate	10

Part - B (Long Answer Questions)

1	What is kernel? What are the different functions handled by a general purpose kernel?	Understand	9
2	What is the difference between a general purpose kernel and real time kernel? Give an example for both?	Analyze	9
3	Explain the difference between memory management of general purpose kernel and real time kernel?	Understand	9
4	Explain how accurate time management is achieved in real time kernel?	Apply	9
5	Explain the TASK and Process in the operating system context?	Apply	9
6	Explain the memory architecture of a process?	Evaluate	9
7	Explain various activities involved in the creation of process and threads?	Evaluate	10
8	What is process control block (PCB)? Explain the structure of the PCB?	Understand	9
9	What is task control block (TCB)? Explain the structure of the TCB?	Understand	9

10	Explain how Threads and process are related? What are the common to process and threads?	Apply	10
11	Explain how multithreading can improve the performance of an application with an illustrative example?	Apply	10
12	Explain thread context switch and the various activities performed in thread context switching for user level and kernel level threads?	Analyze	10
13	What all activities are involved in context switching?	Understand	10
14	Explain the different multitasking models in the operating system context?	Analyze	9
15	Explain the various factors to be considered for the selection of scheduling criteria?	Apply	9
16	Explain the different types of non-preemptive scheduling algorithms? State the merits and demerits of each?	Understand	10
17	Explain the different types of preemptive scheduling algorithms? State the merits and demerits of each?	Understand	10
18	Explain Round Robin (RR) process scheduling with interrupts?	Apply	10
19	Explain starvation in the process scheduling context? Explain how it can be effectively tackled?	Apply	10
20	What is IDLEPROCESS? What is the significance of it in the process scheduling context?	Apply	10

Part - C (Analytical Questions)

1	What is the difference between Hard and Soft real time systems? Give an example for Hard and Soft real time kernels?	Analyze	10
2	Explain how Threads and process are related? What are the common to process and threads?	Evaluate	9

UNIT - V TASK COMMUNICATION

Part - A (Short Answer Questions)

1	Define deadlock?	Understand	11
2	Discuss about Coffman conditions?	Understand	11
3	Discuss about the different methods of handling deadlocks?	Apply	11
4	Give the difference between buffer over run and buffer under run?	Analyze	11
5	Define task synchronization?	Understand	11
6	Give the difference between mutex and semaphores?	Evaluate	11
7	Analyze the critical section problem?	Analyze	11
8	Define device driver?	Understand	11
9	Discuss about the sleep and wakeup mechanism for mutual exclusion.	Apply	11

Part - B (Long Answer Questions)

1	Explain the various process interaction models in detail?	Analyze	11
2	What is inter process communication (IPC)? Give an overview of different IPC mechanisms adopted by various operating systems?	Evaluate	11
3	Explain The message passing technique for IPC. What are the merits and demerits of message based IPC?	Analyze	11
4	Explain the synchronous and asynchronous messaging mechanisms for IPC under windows kernel?	Apply	11
5	What is priority inversion? What are the different techniques adopted for handling priority inversion?	Understand	11
6	Explain the different task communication synchronization issues encountered in inter process communication?	Evaluate	11
7	What is mutual exclusion in the process synchronization context? Explain the different mechanisms for mutual exclusion?	Understand	11

8	Explain the interlocked functions for locked based mutual under windows OS	Analyze	11
9	What is semaphore? Explain the different types of semaphores. Where it is used?	Understand	11
10	Explain the semaphore based process synchronization under windows OS	Understand	11
11	What is critical section? What are the different techniques for controlling access to critical section?	Evaluate	11
12	Explain the event and event object based synchronization mechanism for IPC Windows OS	Understand	11
13	Explain the architecture of Device drivers	Evaluate	11
Part - C (Analytical Questions)			
1	Explain the critical section object for process synchronization? Why critical section object is based synchronization fast?	Analyze	11
2	Explain the different functional and non-functional requirements that needs to be evaluated in the selection of RTOS	Apply	11