Operating Systems

1. Match each of these major parts of an operating system with its function.

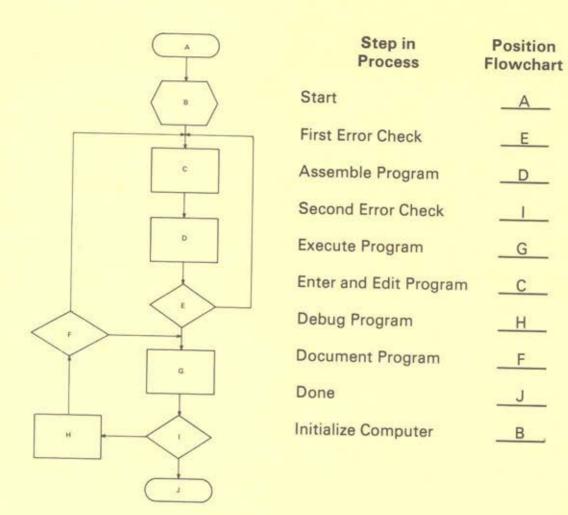| Part	Function
Interrupt Handler	e
Library Manager	c
Scheduler	a
Storage Allocator	d
Executive	f
Device Handler	b

Functions

a. Allocates CPU time to programs and maintains queues for the computer's resources.

b. Connects the operating system and user programs with the input/output devices.

c. Maintains and fetches programs when they are requested.

d. Keeps track of what main memory space is in use and what is available.

e. If a peripheral device were to request service, this unit would determine which routine would respond to the request.

f. Coordinates all operations in the operating system.

2. The blank flowchart below represents the program development process for a computer without an operating system. Match each step of the process with its corresponding position in the flowchart by writing the correct letter in the space provided.

Step in Process	Position Flowchart
Start	A
First Error Check	E
Assemble Program	D
Second Error Check	I
Execute Program	G
Enter and Edit Program	C
Debug Program	H
Document Program	F
Done	J
Initialize Computer	B

3. Indicate whether the following statements refer to swapping (S), overlaying (O), or queuing (Q) by writing the correct letter in the space provided.

Statement	Refers To
Only parts of a single user program are in memory; remaining parts fetched from secondary storage as needed.	O
Allows a timesharing system to service more users than it can store in memory at any one time.	S
A common memory area and secondary storage execute and exchange several different user programs.	S
Allows execution of programs that are physically larger than the available amount of memory.	O
The situation in which the priority in servicing elements is determined by the positions of the elements.	Q

4. Indicate whether these statements and examples refer to foreground (F) or background (B) programs by writing the correct letter in the space provided.

Statements and Examples	Type of Program
May be a subordinate operating system such as batch.	B
Example: process control.	F
Interacts with events outside the computer.	F
A time-critical task that requires rapid responses to interrupts.	F
Example: program development.	B
Executes whenever computer's resources not obligated to other jobs.	B

5. Four types of operating systems, five general functions of operating systems, and twenty descriptions are given below. Match each combination of function and type of operation system with its description.

Functions	Operating Systems			
	Timesharing	Real-Time	Single User	Batch
Executive	b	a	c	d
Scheduler	g	e	h	f
Storage Allocator	i	l	k	j
Library Manager	n	p	o	m
Application	r	q	t	s

Descriptions

Executive

a. Multiprograms machine tasks
b. Multiprograms user tasks
c. Loads and starts requested programs
d. Multiprograms tasks prepared off-line

Scheduler

e. Plans time-critical tasks
f. Uses complex priorities to queue tasks and spool programs
g. Time slices all user tasks
h. Functions are performed by the user or program

Storage Allocator

i. Swaps continually
j. Manages space for different sizes of programs
k. Manages one memory area
l. Allocates memory permanently

Library Manager

m. Handles multiple directories
n. Limits access to files
o. Oversees simple files
p. References files quickly

Application

q. Industrial control
r. Businesses where people access data
s. Mailing lists
t. Small laboratory