Reg. No.															

Question Paper Code	13659

B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2025

Sixth Semester

Electronics and Communication Engineering

(Common to Computer Science Engineering & Information Technology)

20ECEL901 - SYSTEM PROGRAMMING USING C

Regulations - 2020

Duration: 3 Hours | Max. Marks: 100

PART - A (MCQ) (10 × 1 = 10 Marks)

Answer ALL Questions

		Marks	K – Level	CO
1.	What does the realloc function do in C? (a) Frees the allocated memory (b) Resizes previously allocated memory block (c) Allocates memory for an array (d) Initializes memory to default values	1	K1	CO1
2.	Which of the following is an example of a semantic error? (a) Missing a semicolon (b) Using an undeclared variable (c) Assigning a value of the wrong type to a variable (d) Forgetting to include a header file	1	K1	CO1
3.	In the 8051 microcontroller, _____ pins are designated as external hardware interrupts INT0 and INT1. (a) P1.2 and P1.3 (b) P2.2 and P2.3 (c) P3.2 and P3.3 (d) P0.2 and P0.3	1	K1	CO2
4.	What is the purpose of SETB instruction of 8051 microcontroller? (a) It set the bit to 1 (b) It set the bit to 0 (c) It set the bit to -1 (d) It clears the bit	1	K1	CO2
5.	A 16 bit memory address register can address memory locations of (a) 16k (b) 32 k (c) 64k (d) 128 k	1	K1	CO3
6.	How can the priority of interrupts be modified in a microcontroller? (a) By resetting the microcontroller. (b) By disconnecting all external devices. (c) By using a different power supply (d) By configuring the appropriate registers in the code.	1	K1	CO3
7.	____ system call is used to create new process. (a) fork() (b) exit() (c) exec() (d) sleep()	1	K1	CO4
8.	Which is the system call to create a thread in Linux? (a) thread() (b) create() (c) pthread_create() (d) thread_create()	1	K1	CO4
9.	What is the purpose of a semaphore? (a) To create a new process (b) To synchronize access to shared resources (c) To allocate memory for a program (d)To terminate a process	1	K1	CO5
10	_____is called handshake signal in I2C. (a) START (b) STOP (c) ACKNOWLEDGE (d) Serial Clock(SCL)	1	K1	CO6

PART - B (12 × 2 = 24 Marks)

Answer ALL Questions

		Marks	K – Level	CO
11.	What is local variable and global variable?	2	K1	CO1
12.	Recall string functions in C.	2	K1	CO1
13.	Write an 8051 C program to toggle all bits of P1 every 200 ms.	2	K2	CO2
14.	List various logical operations performed in assembly language.	2	K1	CO2
15.	What is the size of DPTR and Stack Pointer in 8051 microcontroller?	2	K1	CO3
16.	Which is the highest priority interrupt of 8051?	2	K1	CO3
17.	What is grep? How it is useful ?	2	K1	CO4
18.	Write UNIX Internal Commands.	2	K1	CO4

19.	How many swap partition can Linux support?		*2*	*K1*	*CO5*
20.	What is the main advantage of creating links to a file instead of copies of the file?		*2*	*K1*	*CO5*
21.	What is the need for embedded software?		*2*	*K1*	*CO6*
22.	List the features of Jazelle instruction set.		*2*	*K1*	*CO6*

PART - C (6 × 11 = 66 Marks)

Answer ALL Questions

23.	a)	Define array. Explain with suitable example how to declare and initialize 1D array.	*11*	*K2*	*CO1*
		OR			
	b)	Write a C program to read name and marks of n number of students from user and store them in a file.	*11*	*K2*	*CO1*
24.	a)	Explain the different steps to receive data serially using 8051.	*11*	*K3*	*CO2*
		OR			
	b) (i)	Write a program to generate a square wave of 25% duty cycle on pin P2.3.	*6*	*K3*	*CO2*
	(ii)	Write an 8051 program count number of 1's in data stored in 50 h memory location.	*5*	*K3*	*CO2*
25.	a)	Draw and explain Interfacing of 32K bytes of external RAM and 4K bytes of ROM with 8051 microcontroller.	*11*	*K2*	*CO3*
		OR			
	b)	Explain the Interrupt structure with the associated registers in 8051 microcontroller.	*11*	*K2*	*CO3*
26.	a)	What do you understand by the term mounting a device? Explain how the devices treated in Linux file system.	*11*	*K2*	*CO4*
		OR			
	b) (i)	Explain the security levels provided in Linux environment. How to change permissions of a file?	*6*	*K2*	*CO4*
	(ii)	What are the features of Linux operating system?	*5*	*K2*	*CO4*
27.	a)	Explain IPC between processes on different systems.	*11*	*K2*	*CO5*
		OR			
	b)	Illustrate two way communication using FIFO with C program.	*11*	*K2*	*CO5*
28.	a)	List the rules which summarizes the cycle timings for common instruction classes on the ARM processor and explain how ARM processor performs operations in parallel.	*11*	*K2*	*CO6*
		OR			
	b)	Illustrate the implementation of software UART using Timer A in MSP430 μC.	*11*	*K2*	*CO6*