(Please write your Roll No. immediately) Roll No. 00818007221

Mid-Term Examination

B.TECH. PROGRAMMES (UNDER THE AEGIS OF USICT)

Sixth Semester, May, 2023

Paper Code: ETCS-304 **Subject:** Operating Systems

Time: 1:30 Hrs. **Maximum Marks:** 30

Note: Attempt Q. No. 1 which is compulsory and any two more questions from the remaining.

Question 1

1. Compare Parallel systems and Distributed systems.
2. Why page size is always power of 2?
3. Explain the difference between process and thread.
4. What is context switching?
5. What do you mean by Belady's Anomaly? Explain with example. (5*2=10)

Question 2

1. What are schedulers? Explain the role of different types of schedulers.
2. Consider the table with 5 processes with their burst and arrival times in milliseconds.

Process	Burst Time	Arrival Time
P1	6	2
P2	2	5
P3	8	1
P4	3	0
P5	4	4

Draw the Gantt chart and find the average waiting time and average turnaround time for FCFS, SRTF and Round Robin(time quantum= 2 ms) scheduling algorithms. (4, 6)

Question 3

1. What is external fragmentation?
2. A system uses FIFO policy for page replacement. It has 4 page frames with no pages loaded to begin with. The system first accesses100 distinct page in some order and then accesses the same 100 pages but now in reverse order. How many page faults will occur?
3. In demand paging, a page replacement policy is used to manage system resources. Suppose that a newly-created process has 3 page frames allocated to it, and then generates the page references indicated below:

A B C B A D A B C D A B A C B D

How many page faults would occur with FIFO, LRU and OPTIMAL page replacement? (2, 2, 6)

Question 4

1. On a simple paged system, associative registers hold the most active page entries and full page table is stored in the main memory. If the references satisfied by the associative registers take 100 ns and references through the main memory page table take 180 ns. What must be the hit ratio to be achieved on effective access time of 125 ns?
2. Write short notes on: (a) PCB (b)Segmentation (c)IPC (4,6)

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Mid-Term Examination
B.Tech Programmes
VI Semester, May, 2023

Paper Code: ETCS-310 Subject: Artificial Intelligence
Time: 1 ½ hours Max. Marks: 30
Note: Q. No. 1 is compulsory. Attempt any two more Questions from remaining.

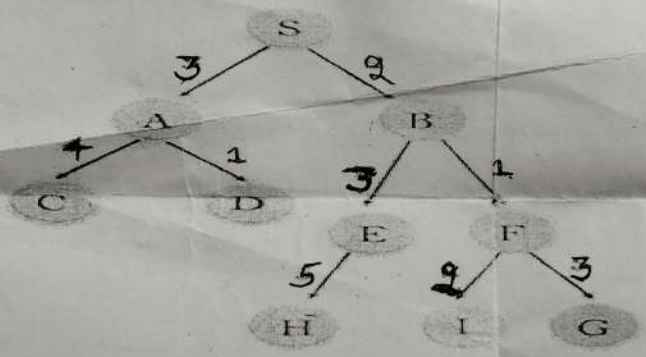
Q.1. Explain briefly: (2x5=10 Marks)

a) What do you mean by Intelligent Agent? Explain its components with the help of example.
b) Compare AI Programs and Conventional Software.
c) What are the various problems associated with Hill Climbing search strategy?
d) Compare Forward Chaining and Backward Chaining.
e) What do you mean by unification rule? Give example.

Q.2 (a) Trace the constraint satisfaction procedure for solving the following Cryptarithmetic Problem (5 Marks)

```
  S O M E
+ T I M E
-----------
S P E N T
```

(b) Apply Best First Search Algorithm and find solution for (5 Marks)



node	H (n)
A	12
B	4
C	7
D	3
E	8
F	2
H	4
I	9
S	13
G	0

Q.3 (a) What do you mean by Mean End Analysis. Solve the problem of a simple household robot of moving a desk from one room to another with two things on it using Mean End Analysis. The operators available are :- PUSH, CARRY, WALK, PICKUP, PUTDOWN, PLACE. (5 marks)

(b) What do you mean by Modus Ponens and Chain rule- inference rules? Prove these inference rules in propositional logic using truth table. (5 Marks)

Q.4 (a) what do you mean by Predicate Logic? (2 Marks)

(b) Convert following into FOL (8 Marks (5+3))

a) Anyone who buys carrots own either a rabbit or a grocery store.
b) Every dog chases some rabbit
c) Mary buys carrots
d) Anyone who owns a rabbit hates anything that chases any rabbit.
e) John owns a dog
f) Someone who hates something owned by another person will not date that person.

Convert above in clause form and prove by resolution following conclusion:- " If Mary does not own a grocery store, she will not date John."

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MID TERM EXAMINATION

B.TECH PROGRAMMES (UNDER THE AEGIS OF USICT)

Sixth Semester, May, 2023

Paper Code: ETCS-308 **Subject: Web Engineering**

Time: 1½Hrs. **Max. Marks: 30**

Note: Attempt Q.No.1 which is compulsory and any two more questions from remaining.

Q.No.		Question	Max. Marks
Q1		Attempt all questions	5*2=10
	(a)	Differentiate between HTML and XML.	
	(b)	Explain the four possible keywords in a DTD declaration with suitable examples.	
	(c)	Explain with example the different type of lists in HTML.	
	(d)	What is WML?	
	(e)	Explain the term Cookies and Sessions.	
Q2	(a)	Explain different types of Style Sheets using suitable examples.	5
	(b)	Design your class time table using HTML.	5
Q3	(a)	Explain the concept of Event handling in Java Script.	5
	(b)	Explain different types of pop up boxes in Java Script with examples.	5
Q4	(a)	Create a student registration form in HTML and validate the email field using Java Script.	5
	(b)	Explain the lifecycle and architecture of Servlet.	5

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MID TERM EXAMINATION

B.TECH PROGRAMMES (UNDER THE AEGIS OF USICT)

6th Semester, May, 2023

Paper Code: ETCS-306 **Subject: Computer Networks**

Time: 1½ Hrs. **Max. Marks: 30**

Note: Attempt Q. No. 1 which is compulsory and any two more questions from remaining.

Q1. Explain briefly: (2*5=10 Marks)

(a) What is Computer Network. Explain in brief with the help of example?

(b) What is hub in Computer network?

(c) What is PSTN in Computer network. Explain in detail?

(d) What is Switching?

(e) What is Transmission media in Computer network?

Q2(a) What is OSI Model. Explain its layers in detail with the help of diagram? (5 Marks)

(b) What is topology in Computer Network. Explain all different types of topologies? (5 Marks)

Q3(a)What are Error Detection and Correction techniques in computer network? (5 Marks)

(b)What is Guided and Unguided Media in Computer Network. Explain in detail? (5 Marks)

Q4(a)What is Multiplexing in Computer Networks. Explain also FDM,WDM and TDM in detail? (5 Marks)

(b)What is Sliding Window Protocol and HDLC. Explain both in detail? (5 Marks)