Total No. of Questions – [03]

PRN	

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PAPER CODE	U222-234(ESE)

MAY 2022 - ENDSEM EXAM

S.Y. B.TECH. (COMPUTER ENGINEERING)

(SEMESTER - II)

COURSE NAME: OPERATING SYSTEM

COURSE CODE: CSUA22204

(PATTERN 2020)

Time: [1Hr] [Max. Marks: 30]

Instructions to candidates:

1) **Figures to the right indicate full marks.**
2) **'a' part of every question is compulsory**
3) **Use of scientific calculator is allowed**
4) **Use suitable data where ever required**

Q.1 a) Describe what is atomicity ? Explain at least one method to achieve the same. [4]

b) Analyze the below program and discuss the possible outcomes of the same. [6]

```
#include <stdio.h>
#include <assert.h>
#include<pthread.h>

void *mythread(void *arg)
{
printf("%s\n", (char *) arg);
return NULL;
}
Int main(int argc, char *argv[])
{

pthread_t p1, p2;
```

```
int rc;
printf("main: begin\n");
rc= pthread_create(&p1, NULL, mythread, "A");
assert(rc == 0);
rc= pthread_create(&p2, NULL, mythread, "B");
assert(rc == 0);
rc = pthread_join(p1, NULL );
assert (rc==0);
rc = pthread_join(p2,NULL);
assert (rc==0);
printf("main: end\n");
return 0;
}
```

OR

b) In producer consumer synchronization problem solved using semaphores what happens if lock is acquired before signaling. Demonstrate using code. [6]

Q2 a) Why DMA Controller is used? [4]

b) Where the Metadata of files are stored? [6]

OR

b) If user would like to open 'root/viit/sy/ass1.txt' file, then write sequence of steps taken by OS [6]

Q.3 a) What is Little's Law? Explain with example. [4]

b) List and explain Important Performance Metrics [6]

OR

b) Explain how OS detects data corruption using 4-byte checksum computed over a block of 16 bytes over following example. Use X-OR function for checksum. [6]

The 16 data bytes, in hex, look like this:

365e c4cd ba14 8a92 ecef 2c3a 40be f666