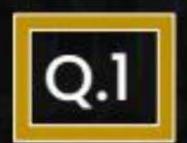# TOPICS TO BE COVERED

01 Question

02 Discussion

Producer Consumer problem has _____.

A. Competition

B. Co-operation

C. Inconsistency

D. Data loss

Q.2 Purpose of "entry section" in synchronization mechanism is.

[MCQ]

A. To allow all processes to access shared resource concurrently.

B. To allow one process at a time to enter into critical section.

C. To indicate the program is started

D. None of these

Q.3 What are the requirements of critical section problem? [MSQ]

A. Mutual exclusion

B. Bounded waiting

C. Deadlock

D. Consistency

Q.4 Mutual exclusion is _____ . [MCQ]

A. Any number of process can enter into critical section if it is free.

B. No process present in Non-CS should block the other process from entering into CS. *Progress.*

C. No two process may be simultaneously present in CS. *Mutual Exclusion*

D. None of these

Q.5 Consider two processes.

[MCQ] (P)(W)

Process X

```
while(true)
    x = 1;
while(y= =1){
// critical section
    x = 0;
    }
}
```

Process Y

```
{ while (true){
    y = 1;
while (x = =1){
// critical section
    x = 0;
    }
}
```

$x = \emptyset$,
$y = \emptyset$,

Violating M.E

Assume x and y shared variables and initialized to 0.

Which of the given condition are satisfied by the above code?

A. Mutual exclusion and progress   B. Mutual exclusion
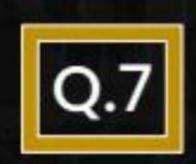
C. Progress   D. No mutual exclusion

Q.6 If Bounded waiting condition is not satisfied, it can cause. [MCQ]

A. Inconsistency ✗

B. Data-loss ✗

C. Starvation ✓

D. Deadlock ✗

Q.7 Which of the following is/are incorrect?

[MSQ] (P)(W)

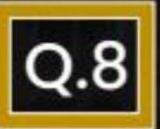A. Process cannot be pre-empted from CS. False

B. Process can enter CS without going into entry section. False

C. Process can complete/leave CS without going into exit section. False

D. Process can be preempted from entry, exit and critical section. True

Q.8 How many of the following are software type solution for synchronization? [NAT]

(i) Lock variable ✓
(ii) Monitor
(iii) Peterson's solution ✓
(iv) Semaphore
(v) Test and set Lock instruction set.   2
(vi) Strict algorithm ✗
(vii) Swap ✗

Programming language/ Compiler based	S/W based	H/W based	OS based
Monitors.	1. Lock variable 2. Strict Alteration 3. Peterson's solution	Test & Set Instruction	Semaphores ↳ Binary ↳ Counting

Q.9 Consider the following program segments for two different **[NAT]** (P W)
processes (P_1 & P_2) executing concurrently; 'a' & 'b' are not
shared variables, 'x' is shared and starts at '0'.

$$P_1 \qquad\qquad\qquad P_2$$

for (a = 1; a< =4; ++a)   for (b =1; b< =4;++b)

$\boxed{x=0}$

$\boxed{x = x +1;}$ 1. X=1   2. X=2   3. X=3   4. X=4   x = x + 1;   Maximum $\boxed{X=8}$

If P_1 and P_2 execute only once and concurrently, then the final
minimum possible value of x is ____4____ .

P_1 Minimum

(writes the value of x=4)

P_2 Increasing/ Increamenting

⇓   1. Read

X=4   2. Update/ Increament

3. Write

THANK YOU GW SOLDIERS !