

Government College of Engineering, Amravati

(An Autonomous Institution of Government of Maharashtra)

CSE Dept. CT-II (S-2019) Course Name – STLD Course Code – CSU601 1Hr.(15marks)

Q.1] Solve the Boolean algebra: $X+Y(Z+(X+Z)')$ [2m]

Q.2] Develop SOP equation from the given function using K-Map, [3m]

$$F(A,B,C,D) = \Sigma_m (1,4,6,9,10,11,14,15) + d_m (0,2,8)$$

Q.3] Draw cascaded design of $F(A,B,C) = \Sigma_m (0,3,5,6)$ using, (i) 4:1 mux and (ii) 2:1 mux [4m]

Q.4] A] Design system for BCD to GRAY code convertor. [6m]

OR

Q.4] B] Simplify the logic function, $F(P,Q,R,S) = \Sigma_m (0,1,2,3,5,7,8,9,11)$ using Queen McClusky method and determine its prime implicants & essential PI. [6m]

$$\begin{aligned} & y_1 + y_1' z \\ & (y_1 + y_1') (z + z') z + z' \end{aligned}$$

GOVERNMENT COLLEGE OF ENGINEERING AMRAVATI
 DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
 CLASS TEST-II Summer 2018

Date-6-3-2018

COURSE CODE: CSU602 OPERATING SYSTEM DESIGN

TIME: 1 hr

MAX. MARKS: 15

Solve any Two. Each question carries 5 marks.

Q.1. What is Critical Section? Which are the conditions satisfied for the process to enter into critical section? How Peterson Solutions satisfy that condition for process? Justify

Q.2. Which are the necessary parameters to prevent from the deadlock? Elaborate with example.

Q.3. consider the problem of synchronization for a barber shop consists of the waiting room with N chairs. If there is no customer to be served then barber goes to sleep. If customer enters the barber shop and all chairs are occupied. Then customer leaves the shop. If the barber is busy and but chairs are available customer sit one of the chair. How to use the wait() and signal() to solve the synchronization problem for customer and barber. Justify

Q4. Process Allocation

	A B C D	Max	Available
P0	4 0 0 1	6 0 1 2	3 1 1 1
P1	1 1 0 0	2 7 5 0	1 1 1 2
P2	1 2 5 4	2 3 5 6	8 3 6 6
P3	0 6 3 3	1 6 5 3	8 9 9 9
P4	0 0 1 4	1 6 5 6	

5 Marks

Write and apply the banker's algorithm to check safe state or not for above snapshot and find the Need. If a request from process P2 arrives for (1, 0, 1, 0), can the request be granted immediately?

8 9 10 13
 12 9 10 14

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CLASS TEST II - SUMMER 2019

COURSE CODE: CSU 602 Operating System and Design

TIME: 1hr

MAX MARK: 15

Solve any Three of the following. Each question carries 5 marks.

Q1. What is semaphore? Explain how semaphore can be used to solve the readers and writers problem?

Q2. Justify Peterson solution to the critical-section problem must satisfy the mutual exclusion, progress and bounded waiting.

Q3. What is race Condition? How it is occur in producer consumer problem? Justify with example

Q4. Consider the following set of processes and resources, Apply bankers Algorithm

Process	MAX	Allocate	Available
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	A	B	C
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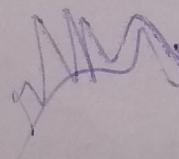
P1	6	4	3
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P2	3	3	2
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P3	2	3	5
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P4	5	4	4
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P5	3	2	2
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Find safe sequence of the given processes. If a request from process P3 for [2 1 1] arrives, can it be granted?