Aufgabe	Lösung				
Page 2					
a) important requirements for of real-time systems (!sic)	- Predicability				
	Reliability     Minimal Delay/Latency     Correctness and Execution time of the results are guaranteed				
	Correctness and Execution time of the results are guaranteed				
h) Name the three types of hardness of real time systems and make a short evaluation. Cive					
b) Name the three types of hardness of real-time systems and make a short explanation. Give example for each.	all				
1.	Hard Realtime: Missing a deadline is a total system failure (airbag in car).				
2.	Soft Realtime: The usefulness of a result degrades after its deadline, therby				
	degrading the system's quality of service (warning systems).				
3.	Firm Realtime: "Infrequent deadline misses are tolerable but may degrade the system's quality of service				
	may degrade the system's quality of service. The usefulness of a result is zero after its deadline.				
	(car: ignition-point-optimizer for motor)"				
c) Specifiy three criteria (not those of b) to classify real-time systems:	Consequence of missing deadline Relaibility and fault tolerance Distribution: centralised or distributed RTS				
	Distribution: centralised or distributed RTS				
	Interactive or autonomic system Hierarchical or flag system Time-driven or event-driven RTS				
	Time-driven or event-driven RTS Cyclic or asynchronous scheduling				
	Cyclic of asynchronous scrieduling				
Page 3					
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$P_2$	P2 \ P7				
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$P_3$ $P_8$					
	P5 Q\				
	P8 \				
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t <sub>3</sub>					
	13				
Page 4	13 16				
	(a)	B) (14. (192), 4.192, (194), 4.195, 4.195, (1927, 4.192), (1)			
Page 4	A) (1: 0.p2: 1.p3: 0.p4: 1.p6: 1.p6: 0.p7: 1.p8: 0) (2: (p1: 0.p2: 0.p3: 1.p4: 0.p5: 1.p6: 0.p7: 1.p8: 0)	B) (\$1.0p2.1p3.0p4.1p5.1p6.0p7.1p8.0) (\$1.0p1.0p2.1p3.0p4.1p5.0p6.0p7.0p8.1)			
Page 4	13	B) (5: (p1: 0:p2: 1:p3: 0:p4: 1:p5: 1:p6: 0:p7: 1:p8: 0) (5: (p1: 0:p2: 1:p3: 0:p4: 1:p5: 0:p6: 0:p7: 0:p6: 1)			
Page 4					
Page 4		a) t2: (p1: 0;p2: 0;p3: 1;p4: 0;p5: 0;p6: 0;p7: 0;p8: 1) DEAD			
Page 4	a) 13: (p1: 1;p2: 0;p3: 0;p4: 0;p5: 0;p6: 0;p7: 1;p8: 0) 11-S: (p1: 0;p2: 1;p3: 0;p4: 1;p6: 0;p7: 1;p8: 0) ALIVE	a) t2: (p1: 0;p2: 0;p3: 1;p4: 0;p5: 0;p6: 0;p7: 0;p8: 1) DEAD			
Page 4	a) 13: (p1: 1;p2: 0;p3: 0;p4: 0;p5: 0;p6: 0;p7: 1;p8: 0) 11-S: (p1: 0;p2: 1;p3: 0;p4: 1;p6: 0;p7: 1;p8: 0) ALIVE	a) (p1: 0;p2: 0;p3: 1;p4: 0;p5: 0;p6: 0;p7: 0;p8: 1) DEAD b) (6: (p1: 0;p2: 1;p3: 0;p4: 0;p5: 0;p6: 1;p7: 0;p8: 0) (4:-5: 5: (p4: 0;p2: 1;p3: 0;p4: 1;p5: 0;p6: 1;p7: 0;p8: 0) (4:-5: 5: (p4: 0;p2: 1;p3: 0;p4: 1;p5: 1;p6: 0;p7: 1;p8: 0;p7: 0;p8: 0;			
Page 4		a) (p1: 0;p2: 0;p3: 1;p4: 0;p5: 0;p6: 0;p7: 0;p8: 1) DEAD b) (6: (p1: 0;p2: 1;p3: 0;p4: 0;p5: 0;p6: 1;p7: 0;p8: 0) (4:-5: 5: (p4: 0;p2: 1;p3: 0;p4: 1;p5: 0;p6: 1;p7: 0;p8: 0) (4:-5: 5: (p4: 0;p2: 1;p3: 0;p4: 1;p5: 1;p6: 0;p7: 1;p8: 0;p7: 0;p8: 0;			
Page 4 a) prepare a detailed reachability graph with all places!	a) 13: (p1: 1;p2: 0;p3: 0;p4: 0;p5: 0;p6: 0;p7: 1;p8: 0) 11-S: (p1: 0;p2: 1;p3: 0;p4: 1;p6: 0;p7: 1;p8: 0) ALIVE	a) t2: (p1: 0;p2: 0;p3: 1;p4: 0;p5: 0;p6: 0;p7: 0;p8: 1) DEAD			
Page 4 a) prepare a detailed reachability graph with all places!  b) verify or falsify the following properties! Underline your result and give a short argument.	a) (3: (p1: 1,p2: 0,p3: 0,p4: 0,p5: 0,p6: 0,p7: 1,p8: 0) (11=5: (p1: 0,p2: 1,p3: 0,p4: 1,p5: 1,p6: 0,p7: 1,p8: 0) ALIVE (b) (5: 0,p2: 0,p3: 1,p4: 0,p5: 0,p6: 0,p7: 0,p8: 1) (5: (p1: 0,p2: 0,p3: 1,p4: 0,p5: 0,p6: 0,p7: 0,p8: 1) (5: 0,p3: 0,p3: 1,p4: 0,p5: 0,p6: 0,p7: 0,p8: 1)	a) (p1: 0;p2: 0;p3: 1;p4: 0;p5: 0;p6: 0;p7: 0;p8: 1) DEAD b) (6: (p1: 0;p2: 1;p3: 0;p4: 0;p5: 0;p6: 1;p7: 0;p8: 0) (4:-5: 5: (p4: 0;p2: 1;p3: 0;p4: 1;p5: 0;p6: 1;p7: 0;p8: 0) (4:-5: 5: (p4: 0;p2: 1;p3: 0;p4: 1;p5: 1;p6: 0;p7: 1;p8: 0;p7: 0;p8: 0;			
Page 4 a) prepare a detailed reachability graph with all places! b) verify or falsify the following properties! Underline your result and give a short argument. is alive / is not alive	a) (p1: 1;p2: 0;p3: 0;p4: 0;p5: 0;p6: 0;p7: 1;p8: 0) t1-5; (p1: 0;p2: 1;p3: 0;p4: 1;p6: 0;p7: 1;p8: 0) ALIVE   b) (p1: 0;p2: 0;p3: 1;p4: 0;p5: 0;p6: 0;p7: 0;p8: 1) DEAD   dead: after firering t5+t2 or t2+t5 it will be deadlocked.	a) (p1: 0;p2: 0;p3: 1;p4: 0;p5: 0;p6: 0;p7: 0;p8: 1) DEAD b) (6: (p1: 0;p2: 1;p3: 0;p4: 0;p5: 0;p6: 1;p7: 0;p8: 0) (4:-5: 5: (p4: 0;p2: 1;p3: 0;p4: 1;p5: 0;p6: 1;p7: 0;p8: 0) (4:-5: 5: (p4: 0;p2: 1;p3: 0;p4: 1;p5: 1;p6: 0;p7: 1;p8: 0;p7: 0;p8: 0;			
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