

PSYC 792 Midterm Examination Questions

1. Describe the purpose and nature of Wickens' *Multiple Resource Theory (MRT)*.
2. Describe the purpose and nature of the SEEV model.
3. What is meant by the *psychological refractory period (PRP)* and how does this phenomenon support central bottleneck theory?
4. Contrast what is meant by *controlled* versus *automatic* modes of information processing. Why is this distinction important in the context of mental workload theory and measurement?
5. What are the key concepts of the *Feature Integration Theory* of visual search?
6. Describe how you might apply MRT as a guide for designing an automated hazard alerting system to be deployed in a high-end luxury car.
7. Describe the factors that guide the capture and deployment of visual attention.
8. Is attention best described as a filter, a resource, or both? Explain your position.
9. What is psychological effort and how can it be quantified?
10. Identify and describe some of the factors that influence the efficiency of task interruptions.
11. What properties distinguish ambient from focal visual processing? Describe the complementary contributions of this dichotomy to efficient visual processing.
12. Describe the conceptual basis of Wickens' (2002) computational-MRT (cMRT) model of dual-task interference. On the basis of Horrey & Wickens' (2003) implementation of the model (i.e., using their *conflict matrix* shown below), determine which of the following subsidiary tasks would be expected to interfere more with the concomitant performance of the primary task:

V_f V_a A_s A_v C_s C_v R_s R_v

Primary task demand vector: 2 1 0 2 0 2 1 0

Secondary task A demand vector: 2 1 2 0 1 1 0 1

Secondary task B demand vector: 2 1 2 0 2 0 1 0

Conflict Model
(Horrey & Wickens, 2003)

		(Priority in Vietnam 2007)							
		V _f	V _a	A _s	A _v	C _s	C _v	R _s	R _v
V _f		0.8	0.6	0.6	0.4	0.7	0.5	0.4	0.2
V _a			0.8	0.4	0.6	0.5	0.7	0.2	0.4
A _s				0.8	0.4	0.7	0.5	0.4	0.2
A _v					0.8	0.5	0.7	0.2	0.4
C _s						0.8	0.6	0.6	0.4
C _v							0.8	0.4	0.6
R _s								0.8	0.6
R _v									1.0

Conflict Model
(Horrey & Wickens, 2003)

(Morley & Wickens, 2005)									
		V _f	V _a	A _s	A _v	C _s	C _v	R _s	R _v
V _f		0.8	0.6	0.6	0.4	0.7	0.5	0.4	0.2
V _a			0.8	0.4	0.6	0.5	0.7	0.2	0.4
A _s				0.8	0.4	0.7	0.5	0.4	0.2
A _v					0.8	0.5	0.7	0.2	0.4
C _s						0.8	0.6	0.6	0.4
C _v							0.8	0.4	0.6
R _s								0.8	0.6
R _v									1.0

Note: Maximum Conflict for this Model = 20.0