

Ollscoil na hÉireann, Gaillimh

NATIONAL UNIVERSITY OF IRELAND, GALWAY

First Year, Master's Degree in Information Technology

Summer Examinations 1999-00

PS502 Cognitive Psychology

Professor Noel Sheehy

Professor Jack James

Mr. Michael Hogan

Time allowed: Three hours

Answer *three* of the following questions:

(Numbers in brackets represent percentage of marks per question).

NOTE: *In all the questions below, refer to research and theory in cognitive psychology and reference authors names where appropriate.*

- 1 a) Critically evaluate the contribution of cognitive psychology to the development of instruction technology. (50)
 b) How can cognitive psychologists help to bridge the gulf between basic research and the development of cognitive artifacts (i.e., applied cognitive psychology). (50)
- 2 a) Critically evaluate the contribution of cognitive psychology to the development of research and theory on auditory and visual attention. (70)
 b) Evaluate the role of automaticity in cognitive performance. (30)
3. Critically evaluate how the spatial metaphor used to describe the structure of human memory has:
 - a) led to advances in our understanding of memory, and (30)
 - b) failed to account for the diversity of memory phenomena. (30)
 - c) Describe the role of cognitive psychology in applied memory research. (40)
- 4 a) Critically evaluate the role of visual imagery in current theories of knowledge representation. (70)
 b) Describe connectionist models of knowledge representation. (30)
- 5 a) Describe the EPIC architecture (40)
 b) Describe how 3 ways in which the EPIC architecture can be used to understand human computer interaction. (40)
 c) Develop an outline for a short research project which uses a cognitive architecture in an applied setting (20).
6. Critically evaluate the role of cognitive and contextual factors in human error. (100)