CS 540 HPC Review

Q1	What factors can affect speedup?						

Answer Summary

Answer options	▲	"too much sequential code"	◆	"insufficient problem set"	●	"wrong programming language"	■	"too much caffeine"
Is answer correct?	✔☐		✔☐		✘		✘	

Q2	Efficiency can be seen as the average speedup per processor

Answer Summary

Answer options	▲	"True"	◆	"False"	●		■	
Is answer correct?	✔☐		✘					

Q3	Parallel computing always yields performance gains.

Answer Summary
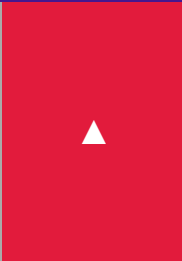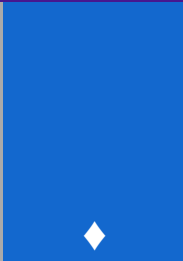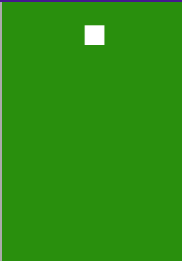
Answer options	▲	"True"	◆	"False"	●		■	

Is answer correct?	✘	✔☐		

Q4 — A basic formula for calculating speedup is:

Answer Summary

Answer options	▲	"single processor run / # of processors"	♦	"# of processors / single processor run"	●	"# of processors / multiple processor runs"	■	"multiple processor runs / # of processors"
Is answer correct?	✔☐		✘		✘		✘	

Q5 — OpenMP is an API that provides a portable, scalable model for non-shared memory

Answer Summary

Answer options	▲	"True"	♦	"False"	●		■	
Is answer correct?	✘		✔☐					

Q6 — What languages does OpenMP support?

Answer Summary

Answer options	▲	"C"	♦	"C++"	●	"Fortran"	■	"Python"
Is answer correct?	✔☐		✔☐		✔☐		✘	

Q7 — OpenMP is designed for massive distributed parallel architectures.

Answer Summary

Answer options	▲	"True"	♦	"False"	●		■	
Is answer correct?	✘		✔☐					

Q8 — What are the 3 API components of OpenMP?

Answer Summary

Answer options	▲	"Compiler Directives"	♦	"Runtime Libraries"	●	"Multiple processors"	■	"Environment Variables"
Is answer correct?	✔☐		✔☐		✘		✔☐	

Q9 — OpenMP is responsible for race conditions and deadlocks.

Answer Summary

Answer options	▲	"True"	◆	"False"	●		■	
Is answer correct?	✘		✔☐					

Q10   OpenMP is designed for _____ processor computers

Answer Summary

Answer options	▲	"single"	◆	"multiple"	●	"distributed"	■	
Is answer correct?	✘		✔☐		✘			

Q11   #pragma is an example of _____ in OpenMP

Answer Summary

Answer options	▲	"Compiler Directive"	◆	"Runtime Library"	●	"System call"	■	"Forking a child
Is answer correct?	✔☐		✘		✘		✘	

Q12   When compiling an OpenMP project what compiler flag is needed?

Answer Summary

Answer options	▲	"-fopenmp"	♦	"-o foo.bar"	●	"-jar"	■	"argv[0]"
Is answer correct?	✔ ☐		✘		✘		✘	

Q13 — What does a thread do when it comes across a PARALLEL directive?

Answer Summary

Answer options	▲	"it fails"	♦	"creates a team of threads, and becomes master thread"	●	"creates a team of threads, and joins the team of threads"	■	"results in a segmentation fault"
Is answer correct?	✘		✔ ☐		✘		✘	

Q14 — omp_get_num_threads() is an example of a _____?

Answer Summary

Answer options	▲	"Compiler Directive"	♦	"Runtime Library Function"	●	"Fortran Routine"	■	"Standard C++ Library Function"
Is answer correct?	✘		✔ ☐		✘		✘	

Q15	What does #pragma omp parallel num_threads(24) do?						

Answer Summary							
Answer options	▲	"modifies the default number of threads to 24"	◆	"creates 24 threads"	●	"sets the number of threads in a parallel region"	■	"terminates 24 running threads"
Is answer correct?	✔☐		✘		✔☐		✘	

Q16	What is the definition of taxonomy?						

Answer Summary							
Answer options	▲	"a field of science responsible for classification"	◆	"an algorithm for detecting tax fraud"	●	"A term used exclusively by the IRS"	■	"the field of science responsible for machine learning"
Is answer correct?	✔☐		✘		✘		✘	

Q17	Flynn's Taxonomy consists of how many classifications?						

Answer Summary

Answer options	▲	"1"	♦	"2"	●	"4"	■	"3"
Is answer correct?	✗		✗		✔☐		✗	

Q18	The SISD taxonomy stands for:						

Answer Summary

Answer options	▲	"Single Instruction Single Data"	♦	"Single Instruction Single Drive"	●	"Single Income Single Data"	■	
Is answer correct?	✔☐		✗		✗			

Q19	Older PC's with a single core processor are capable of parallel processing?						

Answer Summary

Answer options	▲	"True"	♦	"False"	●		■	
Is answer correct?	✗		✔☐					

Q20	All modern pc's/laptops fall under the _____ taxonomy							
Answer Summary								
Answer options	▲	"SIMD (Single Instruction Multiple Data)"	♦	"SISD (Single Instruction Single Data)"	●	"MIMD (Multiple Instruction Multiple Data)"	■	"MISD (Multiple Instruction Single Data)"
Is answer correct?	✔□		✘		✘		✘	

Q21	Todays supercomputer fall under the MIMD category?							
Answer Summary								
Answer options	▲	"True"	♦	"False"	●		■	
Is answer correct?	✔□		✘					

Q22	A standalone computer that consists of multiple CPU's, memory, network interfaces is a _____ ?
Answer Summary	

Answer options	▲	"Node"	◆	"Task"	●	"Loaner"	■	"Network Router"
Is answer correct?	✔□		✗		✗		✗	

Q23	describes a computer architecture where all cores have direct access to common physical memory.

Answer Summary

Answer options	▲	"Shared Memory"	◆	"Distributed Memory"	●	"Network Attached Storage"	■	"Supercomputer"
Is answer correct?	✔□		✗		✗		✗	

Q24	memory that is not common and must use communications to access memory.

Answer Summary

Answer options	▲	"Distributed Memory"	◆	"Shared Memory"	●	"OpenMP"	■	"Child process"
Is answer correct?	✔□		✗		✗		✗	

Q25	A Uniform Memory Access (UMA) architecture has:

Answer Summary

Answer options	▲	"identical processors"	◆	"equal access to memory"	●	"handles race conditions"	■	"network accessible memory"

Question 1

Is answer correct?	✔ ☐	✔ ☐	✘	✘