浙江大学 2019－2020 学年夏学期

《高级操作系统》课程期末考试试卷 Sample Questions

课程号：_____，开课学院：_计算机学院_____

考试试卷：√A 卷、B 卷（请在选定项上打√）

考试形式：闭、开√卷（请在选定项上打√），允许带__任何资料__入场

考试日期：2020 年 06 月 17 日，考试时间：150 分钟

诚信考试，沉着应考，杜绝违纪。

考生姓名：_____学号：_____所属院系：_____

总 分	
评卷人	

Instructions: The exam time is 6/17 14:00-16:30, 150 minutes. There are 50 questions, each question is worth 2 points. Each question has EXACTLY ONE correct answer. If the correct choice is "All of the above", and you choose one of the correct choices but not "All of the above", then your answer is considered to be WRONG.

The typical x86 multicore CPU found in a desktop or laptop computer, e.g., from Intel or AMD, can be classified as:
A. SIMD (Single instruction, multiple data)
B. MIMD (Multiple instructions, multiple data)
C. SISD (Single instruction, single data)
D. MISD (Multiple instruction, single data)

ANS: _____
B

Which of the following is NOT one of the popular programming languages for GPU?
A. CUDA
B. OpenCL
C. OpenGL
D. C#
E. DirectX
ANS: _____
D

In [Clements13] "The Scalable Commutativity Rule: Designing Scalable Software for Multicore Processors", what does it mean when we say a software system is "scalable"?
A. System performance stays constant with increasing number of cores on a multicore processor.
B. System performance increases linearly with increasing number of cores on a multicore processor.
C. System performance deteriorates with increasing number of cores on a multicore processor.

D. System performance is independent of the underlying hardware platform.

ANS: _____
B

Which of the following does NOT describe [Rossbach11], "Rossbach, PTask: Operating System Abstractions To Manage GPUs as Compute Devices"?
A. to provide a dataflow programming model for GPU.
B. to reduce unnecessary memory transfers between CPU and GPU.
C. to provide more OS support for GPUs
D. to build next-generation GPU microarchitecture

ANS: _____
D

Which of the following figure depicts the typical floorplan of a GPU?

A. The left one

B. The right one

C. Neither figure

ANS: _____

B

In [Kim14] "GPUnet: Networking Abstractions for GPU Programs", RDMA (Remote Direct Memory Access) is used to:
A. perform memory transfers between CPU and GPU
B. offload transport layer processing to NIC (Network Interface Card)
C. maintain cache coherence between CPU and GPU
D. reduce unnecessary memory transfers between CPU and GPU.

ANS: _____
B

In [Blagodurov11] "Case for NUMA-aware Contention Management on Multicore Systems", how to decide if two threads will hurt each other's performance if co-scheduled in the same NUMA domain?
A. By using Per Entity Load Tracking Metric
B. By measuring Last-Level Cache (LLC) miss rate
C. By using AMD CPU's Miss Address Buffer (MAB)
D. By using high-resolution timestamps to measure thread start and finish times

ANS: _____

B