TECHNICAL UNIVERSITY OF SOFIA

FACULTY OF GERMAN ENGINEERING EDUCATION AND INDUSTRIAL MANAGEMENT

Specialty "Computer Systems and Technologies" - B.Sc. Degree

Course: Computer architecture Exam Duration: 90 min

Student's name, family name: **Min required to pass: 40 marks for the exam**

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Group No: ……Faculty No: ……

Activity	Marks (max)	Question No	Marks	Max
Lectures attendance	10	Exam 1		10
Lab	30	2		10
Exam	100	3		10
Total	140	4		10
Scale		5		10
Grades	**Marks**	6		10
6	≥71	7		10
5	61-70	8		10
4	51-60	9		10
3	41-50	10		10

1. Summarize the standard desktop, server and transaction processing benchmarks for performance estimation of computer systems
2. Present the structure and the arbitration mechanism of the PCI bus. What is SCSI?
3. Describe the basic concepts of clustering.
4. Present the basic physical machine models of the MIMD architectural class.
5. Present the essence of instruction pipelining. Define the term "superscalar processor".
6. Present the information fragmentation and encapsulation in system area networks of parallel computers.
7. Present the single points of failures in computer clusters.
8. Discuss the purpose and the organization of the reservation stations in contemporary processor architecture?
9. What types of snoopy coherence protocols do you know? What is MESI?
10. Describe the architecture of a superserver. Describe the architecture of a megastation.