Sardar Patel Institute of Technology

Bhavan's Campus, Munshi Nagar, Andheri (West), Mumbai-400058, India

(Autonomous College Affiliated to University of Mumbai)

End Semester Examination

April / May 2018

Max. Marks: 100 — Duration: 180 Min

Class: S.E. — Semester: IV

Course Code: CE44 / IT42 — Branch: Computer / IT

Name of the Course: Computer Organization and Architecture

Instruction:

(1) All questions are compulsory

(2) Draw neat diagrams

(3) Assume suitable data if necessary

Q No.		Max. Marks	CO
Q.1 (a)	What are the functions of the following registers? (I) PC (II) SP (III) MAR (IV) IR (V) MDR	05	CO3
Q.1 (b)	Give the difference between Paging and Segmentation.	05	CO4
Q.1 (c)	Assume numbers are represented in 8-bit twos complement representation. Show the calculations of the following. (I) - 6 + 13 (II) - 6 - 13	05	CO2
Q.1 (d)	How does SRAM differs from DRAM?	05	CO4
Q.2 (a)	Write the Evolution of X86 Computers.	10	CO1
Q.2 (b)	What are the designing performance issues? Explain any two in detail.	10	CO1
	OR		
	What are the Functional units of a computer system? Draw the block diagram of it and explain each block in brief.	10	CO1
Q.3 (a)	Draw the flow chart of restoring division method and perform 23/5 using the same method.	10	CO2
	OR		
	Represent the following in IEEE 754 single precision and double precision formats. (I) 178.1875_{10} (II) -0.0625_{10}	10	CO2
Q.3 (b)	Draw and explain the RISC and CISC architecture. What are it's design issues?	10	CO3
Q.4 (a)	Write the Microinstruction sequencing and execution concept with the help of an example.	10	CO3

Q.4 (b)	Explain the working organization of Eipolar MOS.	10	CO4
	OR		
	Find miss ratio and hit ratio using LRU and FIFO page replacement policy for the following referencing stream – 1 2 3 2 1 5 2 1 6 2 5 6 3 1 3 6 1 2 4 3. Consider i) Frame size = 3 ii) Frame size =4	10	CO4
Q.5 (a)	Draw and explain the block diagram of an I/O module. Discuss the functions of I/O module.	10	CO5
	OR		
	What is bus arbitration? Explain any two techniques of bus arbitration.	10	CO5
Q.5 (b)	What is the concept of pipeline hazard? Explain Data Hazard and Control Hazard in detail.	10	CO6