(7 pages) **Reg. No. :** .....

Code No. : 30861 **Sub. Code : GMCS 31/ GMSE 31**

B.Sc. (CBCS) DEGREE EXAMINATION, NOVEMBER 2013.

Third Semester

Computer Science — Main

COMPUTER ARCHITECTURE

(Also Common to Software Engineering)

(For those who joined in July 2012 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. In instruction format, the no. of bits used for operation code

(a) 4 (b) 2

(c) 3 (d) 5

2. Design of mod-16 counter needs ———— flip flops.

(a) 4 (b) 3

(c) 8 (d) 2

3. When push instruction is executed the value of SP is ————.

(a) Incremented (b) Decremented

(c) Multiplied (d) Divided

4. The register that holds the address for the stack is ————.

(a) Data pointer (b) SP

(c) Stack (d) Program counter

5. The sequence counter used in the multiplication algorithm denotes number of bits in the

(a) Multiplicand

(b) Partial product

(c) Multiplier

(d) Double length multiplier

6. The ———— address is defined to be the memory address obtained from the computation dictated by the given addressing mode.

(a) Relative (b) Effective

(c) Virtual (d) None of these

7. ———— architecture having minimum no.of instructions.

(a) RISC (b) CISC

(c) CCSC (d) RICC

8. ———— circuit that implements the priority function.

(a) Decoder (b) Multiplexers

(c) Demulti-plexers (d) Priority Encoders

9. The data transfer in bits per second is known as

(a) Transmission (b) Reception

(c) Duplex (d) Band rate

10. The sequence of Instruction read from memory constitutes an ————.

(a) Instruction stream (b) Group stream

(c) Cycle stream (d) Machine cycle stream

PART B — (5 × 5 = 25 marks)

Answer ALL the questions, choosing either (a) or (b).

11. (a) What is the purpose of control memory?

Or

(b) List the basic computer instruction.

12. (a) State the uses of any six CPU registers.

Or

(b) Write short note about "Supervisor mode".

13. (a) Explain the process of addition of floating point numbers.

Or

(b) Explain Booths multiplication algorithm.

14. (a) Write short note about "Asynchronous Data Transfer".

Or

(b) Write short notes for the following :

(i) Virtual memory

(ii) Auxiliary memory.

15. (a) Write short note about the operation of pipelining.

Or

(b) Explain the vector operations.

PART C — (5 × 8 = 40 marks)

Answer ALL the questions, choosing either (a) or (b).

16. (a) Explain the architecture of common bus system and also explain how it is communicated with memory and computer register.

Or

(b) Explain about the control unit of basic computer in detail.

17. (a) Explain about various instruction formats with an example.

Or

(b) What is mean by addressing modes? Explain any five addressing modes with examples.

18. (a) Describe the process of floating – point division and its implementation in system.

Or

(b) What is meant by array multiplayer? Explain 4-bit by 3-bit array multiplayer through its block diagram.

19. (a) What is virtual memory? Explain the mapping process.

Or

(b) Explain the communication link between I/O bus and I/O device with neat block diagram.

20. (a) What is meant by the RISC processors? And what are the difference between the RISC and CISC processors.

Or

(b) Explain the term array processors. Describe the various array processors with neat block diagram.
