

BINGHAM UNIVERSITY  
FACULTY OF SCIENCE AND TECHNOLOGY  
COMPUTER SCIENCE DEPARTMENT  
FIRST SEMESTER EXAMINATIONS, FEBRUARY, 2020  
200 LEVEL  
CMP213 COMPUTER HARDWARE  
TIME ALLOWED: 2HRS  
Answer any 3 questions:

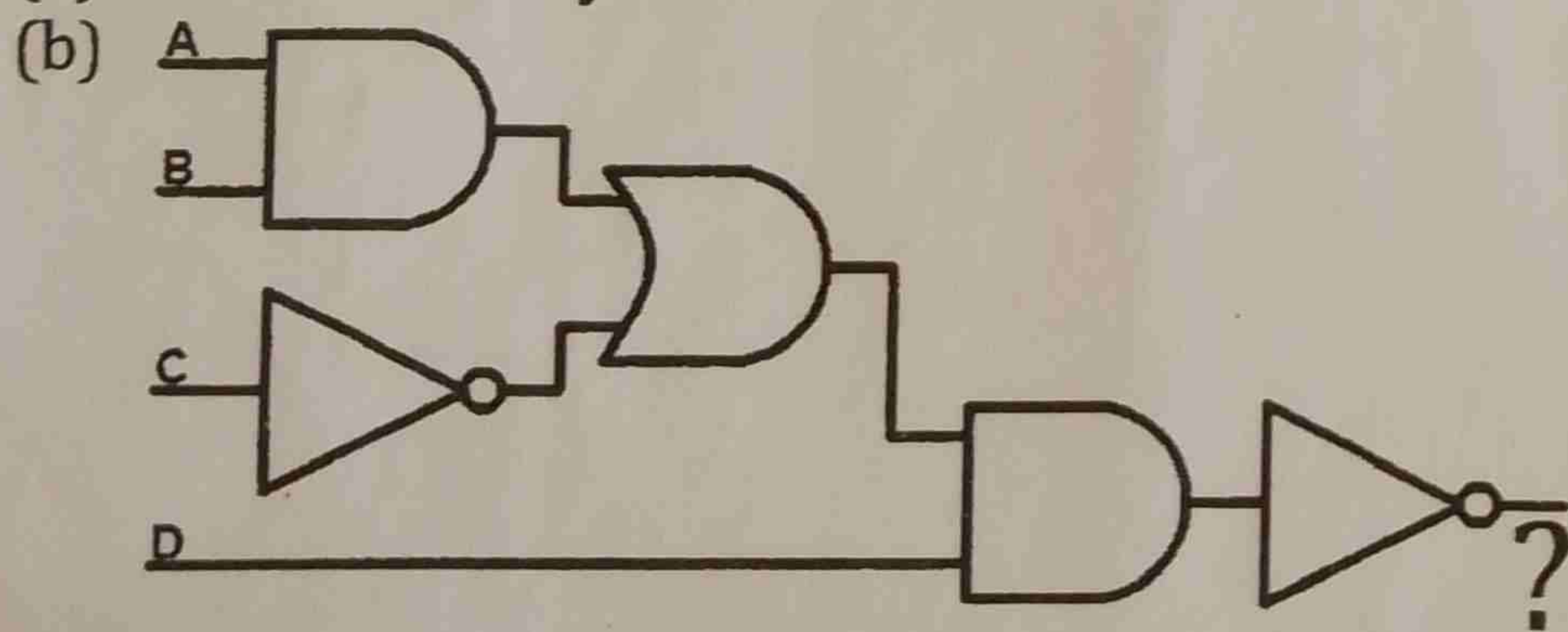
1. (a) What are registers?  
(b) What are their functions  
(c) Briefly describe the Fetch-Decode-Execute cycle.
2. (a) Briefly describe the functions of the motherboard of a computer.  
(b) i. List 3 important components mounted on the motherboard of a modern computer.  
ii. State the functions of each of the components you have listed.  
(c) List and briefly describe any three main types of I/O buses that are used to transport data in the computer.
3. (a) What is RAM?  
(b) Distinguish between a RAM and a Register  
(c) Briefly describe how you can determine how much RAM you need to do your work efficiently with your computer using appropriate examples.  
(d) Give two major components of a memory chip.
4. (a) Write briefly on the CACHE memory  
(b) What is the benefit of the cache memory?  
(c) Distinguish among the common types of cache memory in use.
- 5 (a) What is a port?  
(b) Distinguish between female and male ports.  
(c) A serial data port, a keyboard, and a high-speed network port all use different connectors, so it's not possible to plug a cable into the wrong port. Describe 3 different connectors commonly in use in modern computer systems.



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DEPARTMENT OF COMPUTER SCIENCE  
FIRST SEMESTER EXAMINATION, 2018/2019 SESSION

COURSE TITLE: COMPUTER HARDWARE  
COURSE CODE: CMP 213 COURSE CREDIT UNITS: 2  
TIME ALLOWED: 2 HRS  
INSTRUCTION: ANSWER ANY THREE QUESTIONS

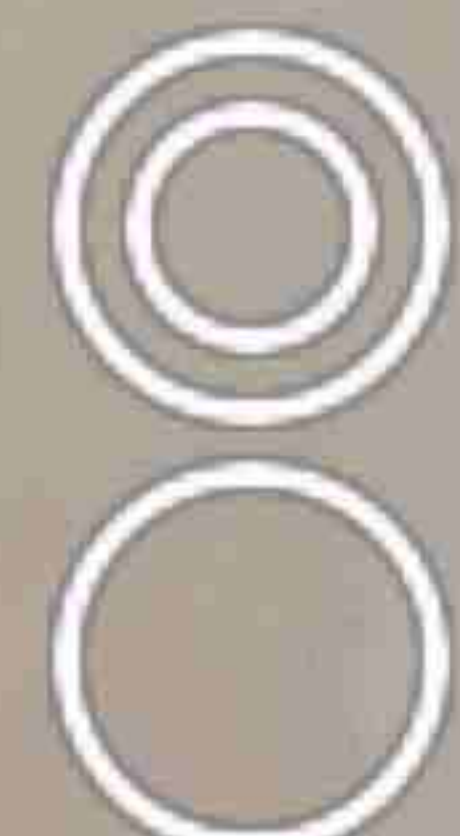
1. (a) Define computer hardware.  
(b)(i) What is the function of the control unit?  
(ii) Provide a block diagram of a computer system  
(c) Explain the following terms  
(i) Device driver (ii) Device controller (iii) Device  
(d) With the aid of a diagram explain the device driver structure.
2. (a) Explain Scribing and cleaving as it relates to IC fabrication.  
(b) A computer system with four page frames has six currently active pages where no pages are currently loaded. Using the Least Recently Used (LRU) page replacement policy, which pages are resident at each step for the sequence of page accesses 1, 2, 3, 4, 1, 2, 5, 6, 3, 2, 6, 1.  
(c) Explain the following terms  
(i) Paging (ii) Segmentation (iii) Present bit (iv) Fragmentation  
(d)(i) Explain Thrashing?  
(ii) Differentiate between FREE BIT MAP and FREE LINKED LIST
3. (a)(i) What is a circuit?  
(ii) How do resistors work?  
(b) Differentiate between the analogue and digital circuits  
(c) (i) Explain the term diode arrays  
(ii) What are peripheral devices?  
(d) Explain the following terms  
(i) Protection bits (ii) Dirty bit (iii) Page Frame Number (PFN) (iv) Prepaging
4. (a) (i) What is the function of the Interrupt Handler?  
(ii) State the major difference between an LCD and an LED monitor.  
(b)(i) What is Integrated circuit?  
(ii) What are transistors?  
(c) Explain Photolithography  
(d) Explain the following classifications of printers  
(i) Continuous feed vs sheet feed (ii) Impact vs Non-impact (iii) Line vs Page
5. (a) What is memory?




- (i) If  $A=1, B=0, C=0, D=0$ . What will the output of the logic operation above be?
- (ii) If  $A=0, B=1, C=0$  and  $D=1$ , what will the output be?
- (c) Explain Etching
- (d) (i) Outline five steps in the fabrication of IC's  
(ii) Explain any of the two steps highlighted in (d)(i).

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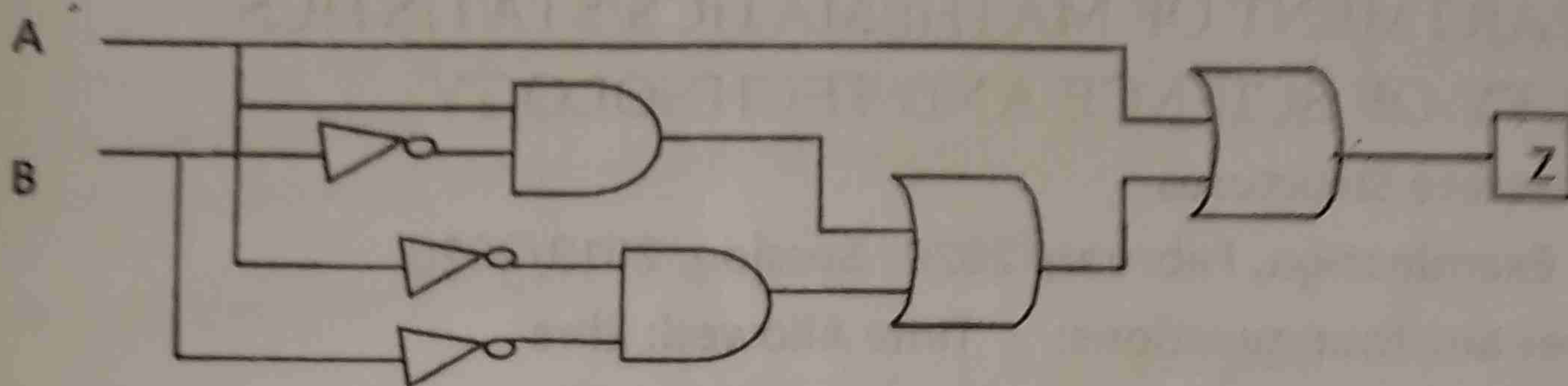




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(b) (i) Determine the Boolean expression corresponding to the circuit below



(ii) Simplify the Boolean expression as possible using the laws of Boolean algebra

(iii) Draw the logic circuit corresponding to your simplified expression.