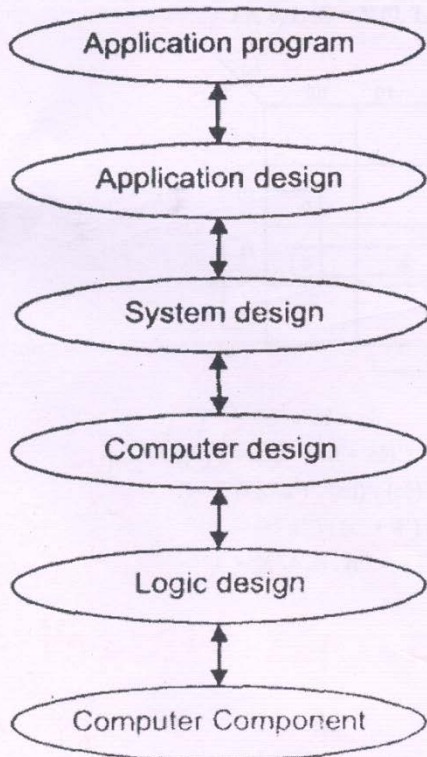


**Q.2 a. Draw top levelled view of computer components.**

Q2. Q. Draw top levelled view of computer components. (8)

Ans. Computer organization includes emphasis on system components, circuit design, logical design, structure of instructions, computer arithmetic, processor control, assembly programming and methods of performance enhancement.



Ans. Sum of Product (SOP)  
 $f(a,b,c,d) = \Sigma(0,1,2,5,8,9,10)$

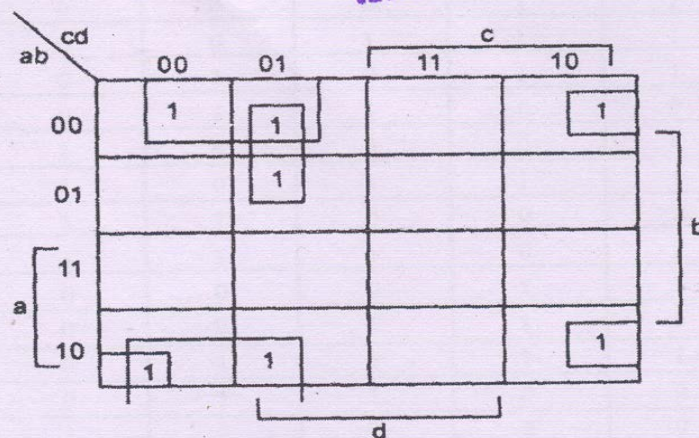


Fig. Four variable K-Map Grouping for all is

**b. Explain instructions and instructions sequencing.**

Ans : Page 37-47 of Book I

**c. Explain various memory operations.**

Ans : Page 36-37 of Book I

**Q.3a. Explain any three addressing modes. Give an example for each. (6)**

Ans : Page 48-56 of Book I

**b.Explain the role of stacks and queues in computer organization (6)**

Ans : Page 68-73 of Book I

**c.Explain encoding of machine instructions.**

Ans : Page 94-96 of Book I

**Q.4a. Give an example to illustrate input interface circuit and output interface circuit.**

Ans : Page 248-257 of Book I

**b.Explain PCI bus and SCSI Bus.**

Ans : Page 261-270of Book I

**Q.5a. Explain Virtual Memory Organization. Explain address translation process in Virtual memory**

Ans : Page 337-340 of Book I

**b. Draw the block diagram of carry look ahead adder. (4)**

Ans : Page 373 of Book I

**c.Explain the working of any two storage devices.**

Ans : Page 344-358 of Book I

**Q.6a. Explain briefly Booth's algorithm for multiplication. Give an Illustration.**

Ans : Page 380-383 of Book I

**b. Give the IEEE standards for the following:-.**

- (i) Single precision floating point number
- (ii) Double precision floating point number.

Ans : Page 393-395 of Book I

**c.Write the sequence steps to perform division operation.**

Ans : Page 390-392 of Book I

**Q.7a. Give the comparison between and examples of hardwired control unit and micro programmed control unit.**

Q7 a. Give the comparison between and examples of hardwired control unit and micro programmed control unit. (8)

Ans. There are two major types of control organisation

(a) Hardwired control. (b) Microprogrammed control.

In Hardwired organisation, the control logic implemented with gates, flip-flops, decoders. It has the advantage that it can be optimised to produce a fast mode of operation

In microprogrammed organisation, the control information is stored in a control. The control memory is programmed to initiate the required sequence of micro operations. A hardwired control; as the name implies, requires changes in the wiring among the various components if the design has to be modified or changed. In the micro programmed control, any required

changes or modifications can be done by updating the microprogram in control memory. A hardwired control for the basic computer is presented here.

Difference between hardwired control and micro-programmed control are given below:

Hardwired control	Microprogrammed control
1. Hardwired control unit is fast because control signals are generated by combinational circuit based upon on present state of flip flops and other conditions.	In Microprogrammed control is based upon sequence of micro-operations which is used to initiate the programs:
2. More is the control signals required by CPU more complex will be the design of control unit.	The design of microprogram control unit is less complex with respect to Hardwired control unit because micro-programms are implemented using software routines.
3. Hardwired control unit is a rigid approach. That means modification in control signal is very difficult. It requires rearranging of wires in hardware circuit	The microprogram control unit is more flexible than its counter part hardwired control unit.
4. It is difficult to correct mistake in original design or adding new features in existing design of control unit	Design modification correction is easily possible by correcting or rewriting the control software information.
5. The faults can diagnosed in hardwired control unit by using hardware components i.e gates, flip-flops etc.	The fault can be easily diagnosed in the microprogram control unit using diagnostics tools by maintaining the contents of flags, registers and counters.

**b. Explain steps to execute an instruction. Give an example.**

Ans : Page 421-423 of Book I

**Q.8a. Explain the process of enabling and disabling of interrupts.**

Ans : Page 211-212 of Book I

**b. Explain direct memory access. Explain various bus arbitration schemes.**

Ans : Page 237-240 of Book I

**c. Give the applications of synchronous bus and asynchronous bus.**

Ans : Page 241-245 of Book I

**Q.9a. Compare Synchronous DRAMS and Asynchronous DRAMs. (4)**

Ans : Page 299-304 of Book I

**b. Define the terms speed, size and cost related to memory system. (6)**

Ans : Page 313-314 of Book I

**c. Explain direct mapping, associate mapping and set associative mapping**

Ans : Page 317-320 of Book I

**(b). Differentiate among direct mapping and associate mapping. (6)**

**Ans. Direct mapping :** The direct mapped cache is the simplest form of cache and easiest to check for a hit. There is only one possible place that any memory location can be cached, there is nothing to search. The line either contain the memory information it is looking for or it does not.

**Associate mapping :** Associate cache is content addressable memory. The cache memory does not have its address. Instead this memory is being accessed using its contents. Each line of cache memory will accommodate the address and the contents of the address from the main memory. Always the block of data is being transferred to cache memory instead of transferring the contents of single memory location from main.

### Text Book

**I. Computer Organization, Carl Hamacher, Zvonko Vranesic, Safwat Zaky, 5th Edition, TMH, 2002**