

12. a). Explain the following (10)

(i) Harvard and Von-Neumann architecture with examples

(ii) How to load 32 bit constant value to a register

b). Convert the following C program into MIPS assembly code (10)

```
Swap (int v[], int k);  
{ int temp;  
  temp =v[k];  
  v[k] =v[k+1];  
  v[k+1]=temp;  
}
```

Module II

13 . a). Explain the complete data path for the multicycle implementation with the help of block diagram showing the necessary control lines. (10)

b). Which are the steps involved in the execution of MIPS instructions? Give examples (10)

14. a). Differentiate between single cycle and multicycle implementation. State the disadvantages of single cycle Implementation (10)

b). Compare the features of micro programmed and hardwired control unit (10)

Module III

15 a). Write short notes on cache miss, cache hit, miss penalty, hit rate . Explain methods to reduce cache miss (10)

b). Explain how address translation is carried out in virtual memories. List the advantages and disadvantages of using virtual memory. (10)

16. a). Draw the structure of memory hierarchy. Explain SRAM and DRAM with neat diagram. (10)

b). Explain different types of ROM .Implement (64 x 8) ROM using (16 x 8) ROM modules (10)