

- c) A B C D
4 3 2 1
- d) A B C D
2 1 4 3
5. Number of modes of operation of 8253 chip are
 - a) 3
 - b) 6
 - c) 5
 - d) 7
 6. If 8255 A chip is selected when A2 to A7 pins are 1, what is the address of Port C?
 - a) FC
 - b) FD
 - c) FB
 - d) FE
 7. Which pin in 8051 is used for reset in 8051?
 - a) 10
 - b) 9
 - c) 7
 - d) 8
 8. 67H in BCD when converted to ASCII is ___H and ___H.
 - a) 36H,37H
 - b) 46H,47H
 - c) 26H,27H
 - d) 56H,57H
 9. If EA = GND, indicate from what source the program code is fetched?
 - a) External ROM
 - b) Internal ROM
 - c) Static RAM
 - d) EPROM
 10. 8051 has a total of _____ bytes of memory space for both program code and data.
 - a) 128 K
 - b) 64K
 - c) 1024K
 - d) 256K

PART B (10 x 2 = 20 Marks)

11. Compare microprocessor and microcontroller.
12. Name the three control flags in 8086.
13. What is instruction cycle?
14. Specify the output at PORT1 if the following program is executed:


```

MVI B,82H
MOV A,B
MOV C,A
MVI D,37H
OUT PORT1
HLT
      
```
15. What is the use of SID and SOD lines?
16. Specify the port addresses for counter0, 1, 2 and control register in 8253 timer.

17. Find the contents of register A after the execution of the following instructions:
- ```
MOV A,#56H
SWAP A
RR A
RR A
```
18. What are the addressing modes for the ANL and ORL instructions?
19. For crystal frequency=11.0592 MHz, find the TH1 value (in both decimal and hex) for each of the following baud rates. (a) 9,600 (b) 4,800.
20. Explain TMOD register.

**PART C (5 x 14 = 70 Marks)**

21. a) (i) What are the different machine cycles in 8085 and also mention the number of T-states required for each machine cycle. Draw the timing diagram for any one of the machine cycle. (7)
- (ii) How many flags 8085 microprocessor have? Explain the flag register of 8085. (7)
- (OR)**
- b) (i) Briefly explain the various interrupts in 8085 microprocessor. (7)
- (ii) Consider a system with 32 KB memory space is implemented using four numbers of 8 KB memory. Interface the EPROM with 8085 microprocessor. (7)
22. a) (i) Classify the instructions according to its word size. Explain each type with a examples. (7)
- (ii) Explain any four instructions of arithmetic group and data transfer group. (7)
- (OR)**
- b) (i) A railway crossing signal has two flashing lights run by a microcomputer. One light is connected to data bit  $D_7$  and the second light is connected to data bit  $D_6$ . Write a program to turn each signal light alternately on and off at an interval of 1 second. (7)
- (ii) Explain the following instructions with examples: (7)
- ```
DAD
DAA
```
23. a) Draw the block diagram of 8255 PPI and briefly explain the BSR mode of operation.

(OR)

b) Draw the block diagram of 8251 USART and explain its operation.

24. a) Explain in detail the memory organization in 8051 microcontroller.

(OR)

b) (i) Write a program to check if the character string of length 7, stored in RAM locations 50H onwards is a palindrome. If it is, output 'Y' to P1. (7)

(ii) Explain the following instructions: (7)
MOVC A,@A+DPTR,MOVX

25. a) (i) With neat diagram explain the 8051 connection to external data RAM. (7)

(ii) Write a program to perform the following: (7)

a) Keep monitoring pin P0.1 continuously.

b) When P0.1 becomes high, read in the data from port1.

c) Send a low-to-high pulse on P0.2 to indicate that the data has been read.

(OR)

b) Explain with neat diagram the PWM technique using 8051.
