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Department of Electronics and Communication Engineering

Question Bank- V Semester (2015-2016)

UNIT WISE EXPECTED UNIVERSITY EXAMINATION QUESTIONS

EC 6504-Microprocessor & Microcontroller (Regulation 2013)

Handled By,

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Unit-I-The 8086 Microprocessor

Part-A

1. **What is microprocessor? What is the difference between a MP and CPU? [NOV-2004]**
2. Why the program counter and stack pointer are registers of 16 bit? [DEC 2010]
3. **List the flags of 8086? [MAY-2014]**
4. **Define stack.[NOV-2008]**
5. **What is assembler directives? [DEC 2007]**
6. What are the various programmed data transfer methods?[NOV 2011]
7. **How is physical address generated in 8086?[NOV 2009]**
8. What are the 8086 instructions used for BCD arithmetic?[MAY 2013]
9. List any four program control instructions available in 8086[MAY 2010]
10. What is an assembler directive? Give two examples? [DEC 2010]
11. List any two external hardware synchronization instruction of 8086 microprocessor? [MAY 2011]
12. How will carry and zero flags reflect the result of the instruction CMP BX,CX? [DEC 2013]
13. Give any four miscellaneous instructions in 16 bit processor? [NOV 2007]
14. **What are the 8086 instructions used for ASCII arithmetic?[DEC 2014]**
15. List the various string instructions available in 8086. [MAY 2009]
16. **What are procedures? [MAY 2010]**
17. **What are Macros? [DEC 2013]**
18. **What is modular programming? [MAY 2015]**
19. Give any four string instructions? [DEC 2014]
20. Why string primitives are used? [MAY 2008]

Part-B

1. **(i) Explain the internal hardware architecture of 8086 microprocessor with neat diagram? (ii) Write short note about assembler directives? [MAY 2011]**
2. **Explain the various addressing modes of 8086 microprocessor with examples? [MAY 2013]**
3. (i) Explain Data transfer, arithmetic and branch instructions ? [NOV 2009]
(ii) Write an 8086 ALP to find the sum of numbers in the array of 10 elements? [DEC 2013]
4. Explain modular programming in detail? [MAY 2015]
5. Write a note about stack, procedures and macros? [MAY 2008]
6. Define interrupt and their two classes? Write in detail about interrupt service routine? [DEC 2010]
7. Explain byte and string manipulation instructions with examples? [MAY 2010]
8. **Write in detail about instruction formats and instruction execution timing? [NOV 2012]**
9. **Write an ALP to find the largest number and smallest number in the array? [MAY 2010]**
10. Write a short note about
 - (i) Loop, NOP and HLT instructions
 - (ii) Flag manipulation, logical and shift & rotate instructions? [MAY 2014]

Unit-II - 8086 System Bus Architecture

Part-A

1. Define a Bus. [DEC 2010]
2. Differentiate External & Internal Bus. [DEC 2007]
3. What are the two modes of operation in 8086? .[NOV-2008]
4. **What is minimum mode and maximum mode? [NOV 2011]**
5. What is the use of initialization command words and operation command words? [NOV 2009]
6. Draw the typical sequence of bus cycles? [MAY 2013]
7. What are the Principal types of I/O. [DEC 2010]
8. **What is direct memory access? [DEC 2007]**
9. Define double buffering and multiple buffering? .[NOV-2008]
10. What are two classes of interrupts? [MAY-2014]
11. **What do you mean by nonmaskable interrupt? [MAY 2013]**
12. Explain bus request, bus rant and cycle stealing? [NOV 2011]
13. Define system throughput? [NOV 2009]
14. Draw the process states and state changes in a simple multiprogramming. [MAY 2010]
15. What is first fit algorithm? [DEC 2010]
16. How does a fragmentation problem occur in multiprogramming? How can we avoid it? [MAY 2011]
17. **What is coprocessor configuration? [MAY 2010]**
18. **What is the difference between closely and loosely coupled configuration? [DEC 2010]**
19. How does a bus access logic help to resolve the bus arbitration problem? [MAY 2011]

Part-B

1. **Explain Minimum mode and maximum mode of operation in 8086 in detail. [DEC 2007]**
2. Explain in detail about the system bus timing of 8086/8088. [NOV 2011]
3. Write notes on the following [NOV 2009]
 - (i) Programmed I/O
 - (ii) Interrupt I/O
4. **Explain in detail about block transfers and DMA. .[NOV-2008]**
5. **Explain in detail about closely coupled configurations. [MAY 2013]**
6. **Explain loosely coupled configurations in detail. [DEC 2010]**
7. Explain the following in detail [MAY 2011]
 - (i) Process Management & iRMX86
 - (ii) Memory Management
 - (iii) Virtual Memory
8. **Explain Numeric data Processor in detail. [MAY 2010]**
9. Explain in detail about I/O Processor. [DEC 2013]
10. Explain the following [MAY-2014]
 - (i) Multiprocessor system(4)
 - (ii) Coprocessor(4)
 - (iii) Multiprogramming(4)
 - (iv) Semaphore(4)

Unit-III- I/O Interfacing

Part-A

1. Write the advantage and disadvantage of parallel communication over serial communication? [DEC 2007]
2. **Compare the features of A/D & D/A convertor [MAY-2014]**
3. **List the four display modes of 8279 keyboard/display controller.[NOV-2008]**
4. List the applications of programmable interval timer. [NOV 2011]
5. What is interfacing? .[NOV-2008]
6. Give the various modes of 8254 timer? [MAY-2014]
7. **What is the output modes used in 8279? [NOV 2009]**
8. What is the significance of end of conversion signal while interfacing A/D converter to a microprocessor? [MAY 2013]
9. Name the modes used by the DMA processor to transfer data. [MAY 2010]
10. **What is key bouncing? [NOV 2011]**
11. What is the use of terminal count register? [DEC 2010]
12. Basic concepts in memory interfacing. [MAY 2011]

13. What is the use of 8251 chip?. [NOV 2009]
14. What is an USART? [DEC 2007]
15. What are the features used mode 1 in 8255? [MAY 2011]
16. What are the basic modes of operation of 8255? [MAY 2010]
17. Give the different types of command words used in 8259? [DEC 2013]
18. Give the operating modes of 8259A? [MAY 2013]
19. What is the purpose of control word written to control register in 8255? [DEC 2013]
20. **What is meant by polling? [DEC 2010]**

Part-B

1. **Draw and explain the block diagram of 8254 programmable interval timer. Also explain the various modes of operation. [NOV-2008]**
2. **Explain 8279 keyboard /display controller with neat block diagram. [MAY-2014]**
3. (i) Explain how to interface: (i) ADC and (ii) DAC (ii) Compare serial and parallel interface? [NOV 2011]
4. With neat block diagram explain the 8251 and its operating modes. [MAY 2013]
5. Draw the block diagram of I/O interface & explain in detail. [DEC 2010]
6. **Explain in detail about DMA controller. [DEC 2007]**
7. Explain the format of I/O mode set control and BSR control word of programmable peripheral interface. Explain in detail the operating modes of PPI? [MAY 2011]
8. Draw and explain the block diagram of traffic light control system. [NOV 2009]
9. **Write short notes on LED display, LCD display, Keyboard display interface. [DEC 2013]**
10. Draw and explain the block diagram of alarm controller. [MAY 2010]

Unit-IV- Microcontroller

Part-A

1. **Specify the size of memory systems used in 8051 microcontroller? [MAY-2014]**
2. Mention the different operand types used in 8051. [NOV-2008]
3. List the counters in 8051 [DEC 2007]
4. **Mention the register bank of 8051 [NOV 2011]**
5. How many ports are bit addressable in 8051 [NOV 2009]
6. What are the hardware and software interrupts of 8051? Mention its vector addresses [MAY 2013]
7. What happens in power down mode of 8051 [MAY 2010]
8. What are the different ways of operand addressing in 8051 [NOV 2011]
9. **How do you place a specific value in the DPTR register? [DEC 2010]**
10. **Which is called as PSW in 8051 [MAY 2011]**

11. List the four significant features of 16-bit microcontroller? [MAY 2013]
12. What is the difference between microprocessor & micro controller? [DEC 2010]
- 13. List the addressing modes of 8051? [DEC 2007]**
14. Explain the instructions used to access external RAM. .[NOV-2008]
15. List the features of 8051 microcontroller? [MAY 2010]
16. Mention the data types of 8051 [MAY-2014]
- 17. Name the special functions registers available in 8051. [NOV 2009]**
18. What are the software and hardware interrupts of 8051? Mention its vector addresses. [MAY 2011]
19. How the selection of particular register bank is done in 8051? [DEC 2013]
20. Mention any two instruction of data serialization [NOV 2007]

Part-B

- 1. Explain the architecture of 8051 with its diagram. [NOV 2009]**
- 2. Explain the I/O pins ports and circuit details of 8051 with its diagram. .[NOV-2008]**
3. Write an 8051ALP to create a square wave 66% duty cycle on bit3 of port 1. [MAY 2013]
4. With example explain the arithmetic and logic instruction of 8051 microcontroller.[DEC 2010]
- 5. With example explain the different instruction set of 8051 microcontroller. [MAY-2014]**
6. Write a program based on 8051 instruction set to pack array of unpacked BCD digits. [MAY 2010]
- 7. Explain the different addressing modes of 8051 [DEC 2007]**
8. Write a program to bring in data in serial form and send it out in parallel form using 8051[MAY 2011]
9. Explain the data Transfer instructions of 8051 [NOV 2011]
10. Explain about the register banks and special function register of 8051 in detail [DEC 2013]

Unit-V- Interfacing Microcontroller

Part-A

- 1. State the uses of I2C bus standard? [DEC 2007]**
2. List the advantages of microprocessor based system design. .[NOV-2008]
- 3. Name the two classifications of stepper motor. [MAY-2014]**
- 4. List the applications of stepper motor. [NOV 2011]**
5. What is the use of stepper motor? [NOV 2009]
6. Differentiate microprocessor from microcontroller in system design. [MAY 2013]
7. How is stepper motor interfaced with 8051? [MAY 2010]
- 8. What are the use of PWM in motor control using microcontroller? [DEC 2010]**
9. What are the features of RTC? [MAY 2011]
10. What is interrupt service routine ? [DEC 2013]
- 11. What is polling? [DEC 2007]**
- 12. Compare polling and interrupt [MAY 2013]**
13. Mention the interrupt priority in 8051 [MAY-2014]
14. What is signal conditioning [DEC 2013]

15. Mention the types of memory [MAY 2011]
16. What is the use of PSEN signal [DEC 2010]
- 17. Which registers are associated with timer programming [NOV 2009]**
18. Which registers are associated with counter programming .[NOV-2008]
19. Which registers are associated with serial programming [MAY 2010]
- 20. Define baud rate of 8051 [NOV 2011]**

Part-B

- 1. Draw the diagram to interface a stepper motor with 8051 microcontroller and explain also write an 8051 ALP to run the stepper motor in both forward and reverse direction with delay .[NOV-2008]**
2. Explain how interrupts are handled in 8051. [NOV 2009]
3. Write short notes on LCD interface. [DEC 2007]
4. Write notes on 8051 serial port programming. [MAY 2010]
5. Explain about external memory interfacing to 8051 [NOV 2011]
- 6. Write notes on 8051 timer and counter programming. [DEC 2010]**
7. Draw and explain the ADC interfacing using 8051. [MAY 2013]
8. Draw and explain the DAC interfacing using 8051. [MAY 2011]
- 9. Explain the keyboard interfacing using 8051 [MAY-2014]**
10. Explain the sensor interfacing using 8051 [DEC 2013]