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**FACULTY OF ENGINEERING & TECHNOLOGY, SRM UNIVERSITY**

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

 **Course Code and Title: 15CS205J – Microprocessor and Microcontroller**

**Cycle test II– /Evaluation form**

**Academic Year: 2017-2018**

**SET - I**

**Program offered: B.Tech(CSE) Year / Sem: III/V**

**Max. Marks: 100 Duration: 3.00 hrs**

**Date of Exam: 27/10/17**

|  |  |
| --- | --- |
| PURPOSE | The purpose of this course is to develop Assembly Language Programs and build a Microprocessor based system for various applications. |
| INSTRUCTIONAL OBJECTIVES  | STUDENT OUTCOMES |
| At the end of the course, student will be able to  |
| 1 | To learn the basics of 8086 Microprocessor to Pentium-core Microprocessor and their functions | a | b |  |  |  |  |  |
| 2 | To understand and implement the 8086 family Assembly Language Programming | a | c |  |  |  |  |  |
| 3 | To explore the I/O interfacing and advanced Microprocessors | a | c |  |  |  |  |  |
| 4 | Expose to the functional architecture of 8051 and its basic programming using C | a | c |  |  |  |  |  |

**Valuation**

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| **Question No.** | **Reference to IO****IO** | **Reference to Outcome****Outcome** | **Marks Allotted** | **Marks Scored** |
| 1 | 2 | A | 1 |  |
| 2 | 2 | B | 1 |  |
| 3 | 2 | B | 1 |  |
| 4 | 2 | B | 1 |  |
| 5 | 2 | B | 1 |  |
| 6 | 2 | A | 1 |  |
| 7 | 3 | A | 1 |  |
| 8 | 3 | C | 1 |  |
| 9 | 3 | C | 1 |  |
| 10 | 3 | C | 1 |  |
| 11 | 3 | A | 1 |  |
| 12 | 3 | A | 1 |  |
| 13 | 4 | A | 1 |  |
| 14 | 4 | A | 1 |  |
| 15 | 4 | C | 1 |  |
| 16 | 4 | C | 1 |  |
| 17 | 4 | A | 1 |  |
| 18 | 4 | C | 1 |  |
| 19 | 4 | A | 1 |  |
| **Question No.** | **Reference to IO****IO** | **Reference to Outcome****Outcome** | **Marks Allotted** | **Marks Scored** |
| 20 | 4 | A | 4 |  |
| 21 | 2 | A | 4 |  |
| 22 | 3 | B | 4 |  |
| 23 | 3 | B | 4 |  |
| 24 | 4 | C | 4 |  |
| 25 | 2 | C | 4 |  |
| 26 | 4 | C | 4 |  |
| 27 | 3 | C | 4 |  |
| 28a | 2 | A | 12 |  |
| 28b | 2 | A | 12 |  |
| 29a | 3 | B | 12 |  |
| 29b | 3 | B | 12 |  |
| 30a | 4 | C | 12 |  |
| 30b | 4 | C | 12 |  |
| 31a | 4 | C | 12 |  |
| 31b | 3 | B | 12 |  |
| 32a | 2 | C | 12 |  |
| 32b | 4 | C | 12 |  |
| **TOTAL** |  |

**Faculty Name:**

**Signature:**

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**S.R.M UNIVERSITY**

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**Cycle test II**

**Subject Name: Microprocessor and Microcontroller**

 **Subject Code: 15CS205J**

**DATE:27 /10 /2017 TIME: 45 MINS MAX MARKS: 20**

**PART A 20\*1=20 Marks**

**(Answer all these questions)**

1. Instructions which won’t appear in the object program are called as \_\_\_\_\_ .
a) Redundant instructions
b) Exceptions
c) Comments
d) Assembler Directives

2. The utility program used to bring the object code into memory for execution is \_\_\_\_\_\_.
a) Loader
b) Fetcher
c) Extractor
d) Linker

3. The microprocessor of a computer cannot operate on any information if that information is not in its.

a) Secondary storage

b) Main storage

c) ALU

d) Logic unit

4. For most computers, the bootstrap is stored in \_\_\_\_.
a) RAM
b) ROM
c) cache
d) tertiary storage

5. The coded object modules of the program to be assembled are present in
a) .ASM file
b) .OBJ file
c) .EXE file
d) .OBJECT file

6. The listing file is identified by
a) source file name
b) extension .LSF
c) source file name and an extension .LSF
d) source file name and an extension .LST

7. The device that enables the microprocessor to read data from the external devices is
a) printer
b) joystick
c) display
d) reader

8. Port C of 8255 can function independently as
a) input port
b) output port
c) either input or output ports
d) both input and output ports

9. The pin that clears the control word register of 8255 when enabled is
a) CLEAR
b) SET
c) RESET
d) CLK

10. The register that keeps track of all the DMA channel pending requests and status of their terminal counts is
a) mask register
b) request register
c) status registerd) count register

11. The mode of 8237 in which the device transfers only one byte per request is
a) block transfer mode
b) single transfer modec) demand transfer mode
d) cascade mode

12. The register that can be automatically incremented or decremented, after each DMA transfer is
a) mask register
b) mode register
c) command register
d) current address register

13. During the execution of instructions, if an instruction is executed, then next instruction is executed only when the data is read by
a) control unit
b) bus interface unitc) execution unit
d) CPU

14. The registers that contains the status information is
a) control registers
b) instruction registers
c) program status word

d) Data register

15. The register that provides control and status information about serial port is
a) IP
b) IE
c) TSCON
d) PCON and SCON

16. The symbol, ‘addr 16’ represents the 16-bit address which is used by the instructions to specify the
a) destination address of CALL
b) source address of JUMP
c) destination address of call or jumpd) source address of call or jump

17. The only memory which can be accessed using indexed addressing mode is
a) RAM
b) ROM
c) main memory
d) program memory

18. The instruction that is used to complement or invert the bit of a bit addressable SFR is
a) CLR C
b) CPL C
c) CPL Bitd) ANL Bit

19. The mnemonic used to perform a subtraction of source with an 8-bit data and jumps to specified relative address if subtraction is non-zero is
a) DJNZ
b) CJNEc) JZ
d) JNC

20. In boolean instructions, the flag that is the only allowed destination operand for two operand instructions is
a) overflow flag
b) underflow flag
c) auxiliary flag
d) carry flag

**PART B**

Answer any FIVE questions **5\*4=20 marks**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sl.No** | **Question** | **Course Outcome** | **Bloom’s Taxonomy** | **Marks** |
| 21 | Define PUBLIC and EXTRN. | A | Knowledge | 4 |
| 22 | What are the basic modes of operation of 8255? | B | Comprehension | 4 |
| 23 | Discuss the function of DMA address register? | B | Comprehension | 4 |
| 24 | Illustrate the formats and bit definitions of PSW in 8051 microcontroller. | C | Application | 4 |
| 25 | Compare and contrast Keyboard and Display device. | C | Analysis | 4 |
| 26 | Enrich salient features of 8051 family of microcontrollers. | C | Knowledge | 4 |
| 27 | Write short notes on a) HIT¯ b) IERR c) DBSY¯ | C | Application | 4 |

**PART C**

Answer all the questions **5\*12=60 marks**

|  |  |  |  |
| --- | --- | --- | --- |
| **Question** | **Course Outcome** | **Bloom’s Taxonomy** | **Marks** |
| 28)a | Describes the Assembler and Linker, Linking task, Library Files, PUBLIC and EXTRN. | A | Application,Comprehension | 12 |
| (OR) |
| 28)b | Illustrate of using Assembly Language with C/C++ for 16-bit applications with an example. | A | Analysis, Application | 12 |
| 29)a | With a neat block diagram and explain in detail the internal architecture of 8255 and its registers. | B | Evaluate,Comprehension | 12 |
| (OR) |
| 29)b | Explain the Internal Structure of the Pentium Pro Microprocessor with neat diagram. | B | Knowledge, Application | 12 |
| 30)a | Draw the architectural diagram of 8051 microcontroller and explain in detail about each block. | C | Application, Analysis | 12 |
| (OR) |
| 30)b | Explain the different modes of operation of timers/counters in 8051 microcontroller | C | Comprehension, Knowledge | 12 |
| 31)a | Briefly explain the arithmetic and logic instruction of 8051 microcontroller with an example. | C | Evaluate, Comprehension | 12 |
| (OR) |
| 31)b | Explain in detail about the internal architecture of 8237 with a neat block diagram. | B | Application, Analysis | 12 |
| 32)a | i) What is data conversion and Write an assembly language program for ASCII to Binary conversion | C | Knowledge, Evaluate | 12 |
| (OR) |
| 32)b | Discuss about the various addressing modes of 8051 and describe with an example. | C | Comprehension, Application | 12 |