**Examinations Commencing from 1ˢᵗ June 2021**

Program: **Electronics and Telecommunication Engineering**

Curriculum Scheme: Rev2020

Examination: BE Semester IV

Course Code: ECC402 and Course Name: Microcontrollers

Time: 2 hours　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　Max. Marks: 80

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| Q1. | Choose the correct option for following questions. All the Questions are compulsory and carry equal marks |
|---|---|
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| 1. | 8051 series has how many 16 bit registers? |
| Option A: | 2 |
| Option B: | 3 |
| Option C: | 1 |
| Option D: | 0 |
|  |  |
| 2. | When 8051 wakes up then 0x00 is loaded to which register? |
| Option A: | DPTR |
| Option B: | SP |
| Option C: | PC |
| Option D: | PSW |
|  |  |
| 3. | How are the bits of the register PSW affected if we select Bank2 of 8051? |
| Option A: | PSW.5=0 and PSW.4=1 |
| Option B: | PSW.2=0 and PSW.3=1 |
| Option C: | PSW.3=1 and PSW.4=1 |
| Option D: | PSW.3=0 and PSW.4=1 |
|  |  |
| 4. | If we push data onto the stack then the stack pointer |
| Option A: | increases with every push |
| Option B: | decreases with every push |
| Option C: | increases & decreases with every push |
| Option D: | none of the mentioned |
|  |  |
| 5. | How many bytes of bit addressable memory is present in 8051 based microcontrollers? |
| Option A: | 8 bytes |
| Option B: | 32 bytes |
| Option C: | 16 bytes |
| Option D: | 128 bytes |
|  |  |
| 6. | DAA command adds 6 to the nibble if: |
| Option A: | CY and AC are necessarily 1 |
| Option B: | Either CY or AC is 1 |
| Option C: | no relation with CY or AC |
| Option D: | CY is 1 |

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| 7. | A valid division instruction always makes: |
| Option A: | CY=0,AC=1 |
| Option B: | CY=1,AC=1 |
| Option C: | CY=0,AC=0 |
| Option D: | no relation with AC and CY |
| | |
| 8. | Which instructions have no effect on the flags of PSW? |
| Option A: | ANL |
| Option B: | ORL |
| Option C: | XRL |
| Option D: | All of the mentioned |
| | |
| 9. | DJNZ R0, label is how many bit instructions? |
| Option A: | 2 |
| Option B: | 3 |
| Option C: | 1 |
| Option D: | Can't be determined |
| | |
| 10. | What is the difference between UART and USART communication? |
| Option A: | they are the names of the same particular thing, just the difference of A and S is there in it |
| Option B: | one uses asynchronous means of communication and the other uses synchronous means of communication |
| Option C: | one uses asynchronous means of communication and the other uses asynchronous and synchronous means of communication |
| Option D: | one uses angular means of the communication and the other uses linear means of communication |
| | |
| 11. | What are t, d, m, I stands for in ARM7TDMI? |
| Option A: | Timer, Debug, Multiplex, ICE |
| Option B: | Thumb, Debug, Multiplier, ICE |
| Option C: | Timer, Debug, Modulation, IS |
| Option D: | Thumb, Debug, Multiplier, IS |
| | |
| 12. | ARM stands for _____ |
| Option A: | Advanced RISC Machine |
| Option B: | Advanced RISC Methadology |
| Option C: | Advanced Reduced Machine |
| Option D: | Advanced Reduced Methadology |
| | |
| 13. | ARM7DI operates in which mode? |
| Option A: | Big Endian |
| Option B: | Little Endian |
| Option C: | Both Big and Little Endian |
| Option D: | Neither big nor little Endian |
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| 14. | The ARM7TDMI-S uses which pipelining? |
| Option A: | 2-Stage |
| Option B: | 3-Stage |

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| Option C: | 4-Stage |
| Option D: | 5-Stage |
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| 15. | What is the processor used by ARM7? |
| Option A: | 8-bit CISC |
| Option B: | 8-bit RISC |
| Option C: | 32-bit CISC |
| Option D: | 32-bit RISC |
| | |
| 16. | What is the instruction set used by ARM7? |
| Option A: | 16-bit instruction set |
| Option B: | 32-bit instruction set |
| Option C: | 64-bit instruction set |
| Option D: | 8-bit instruction set |
| | |
| 17. | How many registers are there in ARM7? |
| Option A: | 35 register( 28 GPR and 7 SPR) |
| Option B: | 37 registers(28 GPR and 9 SPR) |
| Option C: | 37 registers(31 GPR and 6 SPR) |
| Option D: | 35 register(30 GPR and 5 SPR) |
| | |
| 18. | LPC 2148 pro development board has      on chip memory. |
| Option A: | 500k |
| Option B: | 625k |
| Option C: | 512k |
| Option D: | 425k |
| | |
| 19. | The USB controller provides high speed interface to laptop/PC with a speed of |
| Option A: | On-chip USB with 12Mb/s |
| Option B: | On-chip USB with 15Mb/s |
| Option C: | Peripheral USB with 12Mb/s |
| Option D: | Peripheral USB with 15Mb/s |
| | |
| 20. | Which LCD display is present in LPC 2148 Development Board? |
| Option A: | 8*8 LED |
| Option B: | 2*32 LCD |
| Option C: | 2*16 LCD connected peripherally |
| Option D: | 2*16 LCD onchip |

| Q2 | |
|---|---|
| A | **Solve any Two**                      **5 marks each** |
| i. | List the features of ARM7 |
| ii. | Explain 8051assembler directives. |
| iii. | Differentiate between ARM and THUMB state. |
| | |
| B | **Solve any One**                      **10 marks** each |

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| i. | Explain LCD interfacing with 8051 and write assembly language program to display "HI" on it. Draw the connection diagram of 8051 with LCD. |
| ii. | Explain serial communication of 8051 with the help of SCON register. |

| Q3 | |
|---|---|
| A | **Solve any Two**                        **5 marks each** |
| i. | Draw and explain Program Status Word register of 8051. |
| ii. | Write a short note on CPSR of ARM7. |
| iii. | Explain any five addressing modes of 8051 with one example each. |
| | |
| B | **Solve any One**                        **10 marks each** |
| i. | Draw and explain data flow model of ARM7. |
| ii. | Explain Interrupts in 8051 with Interrupt vector table. |