C 4728 (Pages : 2) Name.....

Reg. No.....

SECOND SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, APRIL 2021

(CBCSS)

Electronics

ELS 2C 08—ADVANCED MICROCONTROLLERS

(2019 Admissions)

Time : Three Hours Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend* **all** *questions in each section.*
2. *The minimum number of questions to be attended from the Section / Part shall remain the same.*
3. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

Part A

Answer any **four** *questions.*

Each question carries a weightage 2.

1. What are the criteria for choosing the microcontroller for an application ?
2. Briefly explain the space allocation of file register in PIC 18 family.
3. Explain the directives 'ORG', 'END' and 'LIST'.
4. Compare Flash memory and EPROM.
5. Explain the role of Stack in executing the CALL instructions in PIC with an example.
6. Explain the Interrupt Control Register (INTCON) of PIC 18 microcontroller.
7. Write short notes on memory system of ARM processor.

(4 × 2 = 8 weightage)

Part B

Answer any **four** *questions.*

Each question carries a weightage of 3.

8. Explain MOVLW and ADDLW instructions with example.

9. Explain the functions of Port A and Port B in PIC 18.

10. Write a C 18 program to toggle all the bits of Port B continuous with a 250 ms delay. The XTAL frequency = 10 MHz.

11. Explain the bit addressability of Data RAM of PIC 18 with example.

12. Explain the I2C bus protocol in detail.

13. Explain the capture mode operation of CCP module. What are the steps involved in capture mode programming ?

14. Explain the ARM compiler, assembler and linker.

(4 × 3 = 12 weightage)

Part C

Answer any **two** *questions.*

Each question carries a weightage of 5.

15. What is meant by addressing modes ? What are the different addressing modes involved in PIC 18 ? Explain each with examples.

16. Explain how the Timers 0 and 1 generate time delays in PIC 18 with an example

17. Explain the DAC interfacing with PIC processor with program and block diagram.

18. What is pipelining ? Explain five stage pipelining employed in ARM processors.

(2 × 5 = 10 weightage)

C 4727 (Pages : 2) Name.....

Reg. No.....

SECOND SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, APRIL 2021

(CBCSS)

Electronics

ELS 2C 07—DESIGN OF EMBEDDED SYSTEMS

(2019 Admissions)

Time : Three Hours Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend* **all** *questions in each section.*
2. *The minimum number of questions to be attended from the Section / Part shall remain the same.*
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Part A (Short Answers)

Answer any **four** *questions.*
Each question carries a weightage of 2.

1. Briefly explain 'System on Silicon'.
2. What does partitioning decision mean ?
3. What are the features of re-entrant functions ?
4. What are the advantages of using flash memory in embedded system ?
5. What is the need of performing embedded software testing ?
6. Define Real Time Operating System. How is it different from General Purpose Operating system ?
7. What is the need for Embedded Product Development Life Cycle ?

(4 × 2 = 8 weightage)

Part B (Short Essays)

Answer any **four** *questions.*
Each question carries a weightage of 3.

8. What are the different types of tools considered when evaluating the tool chain?
9. Explain microprocessor based embedded system.

Turn over

10. What is the method to eliminate stack overflow ?
11. Write a short note on performance testing ?
12. What are the different types of embedded software testing ?
13. How are pipes used for interprocess communication ?
14. What are the different phases of Embedded product development life cycle ?

(4 × 3 = 12 weightage)

Part C (Essay Type)

Answer any **two** *questions.*
Each question carries a weightage of 5.

15. Explain the different issues the selection process of the controller or processor in embedded system.
16. Explain the operation of watchdog timer with necessary diagrams.
17. Compare the commercial RTOS VxWorks and RT Linux.
18. Do the case study of SMART CARD as an embedded system.

(2 × 5 = 10 weightage)

SECOND SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, APRIL 2021

(CBCSS)

Electronics

ELS 2C 06—WIRELESS COMMUNICATION

(2019 Admissions)

Time : Three Hours Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend* **all** *questions in each section.*
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Part A

Answer any **four** *questions.*
Each question carries 2 *weightage.*

1. Explain FDD.
2. Define dwell time.
3. What is Sectoring ?
4. What is Scattering ?
5. What are the features of TDMA ?
6. What you mean by GPRS ?
7. What are the techniques used to improve the received signal quality ?

(4 × 2 = 8 weightage)

Part B

Answer any **four** *questions.*
Each question carries 3 *weightage.*

8. What is WLL ?
9. What is blocked call delay system ?

10. What do you mean by forward and reverse channel ?

11. What are the factors influencing small scale fading ?

12. Explain the principles of Code Division Multiple Access and compared with TDMA.

13. Explain with neat diagram explain pi/4-QPSK.

14. Explain in detail a linear equalizer.

(4 × 3 = 12 weightage)

Part C

Answer any **two** *questions.*
Each question carries 5 *weightage.*

15. Discuss on the evolution of 3G wireless networks.

16. Explain in detail about channel assignment strategies.

17. With necessary diagrams explain Knife - edge Diffraction Model.

18. Explain the diversity techniques in detail.

(2 × 5 = 10 weightage)

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Reg. No.....

SECOND SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, APRIL 2021

(CBCSS)

Electronics

ELS 2C 05—HIGH PERFORMANCE COMMUNICATION NETWORKS

(2019 Admissions)

Time : Three Hours Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend* **all** *questions in each section.*
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Part A

Answer any **four** *questions.*
Each question carries 2 *weightage.*

1. Explain how congestion control is done in computer networks.
2. What are the different types of traffic in a network ? Give examples.
3. What are Ethernet switches ?
4. Explain SMDS.
5. What are paging systems ?
6. What is sub carrier multiplexing ?
7. Differentiate between single hop LANs and multi hop LANs.

(4 × 2 = 8 weightage)

Turn over

Part B

Answer any **four** *questions.*

Each question carries 3 *weightage.*

8. Explain the different types of multiplexing in computer networks.

9. What are the technology bottlenecks in achieving high performance network ?

10. What are different physical layer specifications for IEEE 802.3 ?

11. What is LLC ? What are its functions ?

12. Explain how routing is done in IPv4 ?

13. Explain how fault management is done by ATM networks.

14. What are the different types of losses in optical links ?

(4 × 3 = 12 weightage)

Part C

Answer any **two** *questions.*

Each question carries 5 *weightage.*

15. What do you mean by layered architecture ? How is it implemented ?

16. Write short notes on : (a) FDDI ; (b) DQDB ; and (c) Frame relay.

17. Explain in detail ATM header structure.

18. Write notes on : (a) Optical LANs ; and (b) Optical Cross Connect.

(2 × 5 = 10 weightage)