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Question Paper Code : 11265

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2026.

Fifth/Sixth/Seventh Semester

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Electrical and Electronics Engineering

EE3018 –EMBEDDED PROCESSORS

(Regulations 2021)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define Pipeline.
2. List the different kinds of registers that the ARM processor uses.
3. What does the ARM processor's thumb mean?
4. What are the primary characteristics of the ARM instruction set?
5. What is UART? What is its purpose?
6. How is the ARM processor's DAC interface implemented?
7. What is an I² bus? What are the primary characteristics of it?
8. Define the SPI protocol.
9. List the common commands used in Linux operating system.
10. Define GPIO.

PART B — (5 × 13 = 65 marks)

11. (a) Explain about memory organization and various addressing modes in ARM.

Or

- (b) Draw the block diagram of ARM architecture and explain the various functions of it.

12. (a) With the help of a suitable example, explain the architectural integration of a Digital Signal Processor (DSP) with an ARM processor and discuss its advantages.

Or

- (b) Explain the Thumb instruction set used in ARM processors.

13. (a) Write short notes on the following

(i) UART (7)

(ii) SRAM. (6)

Or

- (b) With the help of a suitable block diagram, describe the working of serial communication between a PC and an embedded device.

14. (a) Explain briefly about CAN bus with neat diagram.

Or

- (b) Discuss the significance and advantages of the PC protocol, highlighting its role in modern embedded applications.

15. (a) With the help of a suitable example, explain the working of the Raspberry Pi and its interfacing using Python programming.

Or

- (b) With the help of a neat block diagram, discuss the Raspberry Pi architecture and explain the functions of its various units.

PART C — (1 × 15 = 15 marks)

16. (a) Explain, with a neat circuit diagram and flowchart, the operation of a microcontroller-based temperature measurement system in which analog sensor data is converted to digital form using an ADC and displayed on an LCD.

Or

- (b) Explain various operating models of ARM, what is coprocessor and how it works.