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S.NO.: 166 BATCH: 2014, 2016 Reg. No.:

END OF SEMESTER EXAMINATIONS, NOVEMBER - 2018
SPECIAL ELECTRONICS - III
SUBJECT CODE : 09P3PH11

MAJOR : M.Sc (Physics) **SEMESTER : III**
TIME : 3 HOURS **MAX. MARKS: 70**

Answer ALL Questions: **SECTION - A (10 X 1 = 10)**

Choose the best answer:

1. In an optical fiber, the concept of Numerical aperture is applicable in describing the ability of
   a. light scattering b. light collection
   c. light dispersion d. light polarization
2. The data bus buffer is controlled by
   a. read/write control logic b. control word register
   c. data bus d. none of the mentioned
3. 8086 microprocessor is interfaced to 8253 a programmable interval timer. The maximum number by which the clock frequency on one of the timers is divided by
   a. 2^{16} b. 2^{8} c. 2^{10} d. 2^{2}
4. Which operations are not feasible to perform by simulator programs in accordance to real time programming?
   a. Memory operations b. I/O operations
   c. Register operations d. debugging operations
5. Which level model components like ALU, memories registers, muxes and decoders?
   a. switch level b. gate level
   c. register-transfer level d. circuit level
6. Define: Optical fiber wave guides.
7. Write the types of data transfer schemes.
8. How many functional units does 8086 contain?
9. Define: Embedded system.
10. Write the advantages of DSP.

SECTION - B (5 X 4 = 20)

Answer ALL the questions:

11. a) Explain about the losses in fibers.
    (OR)
    b) Explain about multi-fiber couplers.
12. a) Explain i) Memory Mapped I/O scheme ii) I/O Mapped I/O scheme.
    (OR)
    b) Describe the Asynchronous Data transfer.

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13. a) Draw and explain the Intel 8086 pin diagram.

(OR)

b) Explain addressing models in Intel 8086.

14. a) Describe the categories of Embedded systems.

(OR)

b) Discuss the skills requirements of Embedded systems.

15. a) Explain the ADC and DAC.

(OR)

b) Explain the DSP Architecture.

SECTION - C (5 X 8 = 40)

Answer ALL the questions:

16. a) Describe about the pulse dispersion in step index fibers and multimode graded index fibers.

(OR)

b) Discuss about various light sources and detectors for optical fibers.

17. a) Describe the i) Interrupt Driven Data transfer ii) Multiple interrupts.

(OR)

b) Explain the Direct memory access data transfer.

18. a) Draw and discuss the internal block diagram of 8086.

(OR)

b) Describe the Bus structure and timings of 8088.

19. a) Explain the Biomedical systems in Embedded systems.

(OR)

b) Explain the Wireless communication in Embedded systems.

20. a) Draw and explain the block diagram of Hardware Architecture in Embedded system.

(OR)

b) Draw and explain the block diagram of 8050 Architecture.

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