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Roll No. | | | | | | | | | | | | | Total No. of Pages : 03

Total No. of Questions : 09

B.Sc. (Hons) Aircraft Maintenance (2018 Batch) (Sem.–2)

ELECTRONIC FUNDAMENTAL AND DIGITAL TECHNIQUES-I

Subject Code : BSCRAM-202-18

M.Code : 75834

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

1. Write briefly :

(a) What is depletion region in PN junction?

(b) Collector region of transistor is larger than emitter. Why?

(c) What is an operational amplifier?

(d) What is need for a PCB?

(e) What is meant by LSB and MSB?

(f) What are the components of feedback control system?

(g) Define Quantization.

(h) What do you mean by Data bus? How are data bus in avionics architecture broadly divided into?

(i) Explain why is two-input NAND gate called universal gate.

(j) What are the basic components of a microprocessor?

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SECTION-B

2) (a) What are clampers and explain their working in details using suitable example. (2.5 marks)

(b) Explain the effect of negative feedback on voltage gain, input & output resistances, distortion, bandwidth and noise. (2.5 marks)

3) Mention and justify the applications of fiber optics in aircraft systems. (5)

4) What is the relationship between control unit and ALU? Also discuss difference between the two. (5)

5) Explain in detail the operation and use of encoders and decoders in detail. Also list the functions of various encoder types. (5)

6) Determine the output in following cases :

a) If A=0, B=l, C=0, what is R in fig. 1? (2.5 marks)

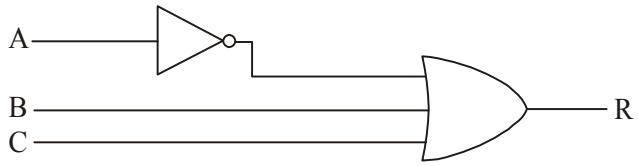

Fig.1

b) If A=l, B=0, C=l, what is R in fig.2? (2.5 marks)

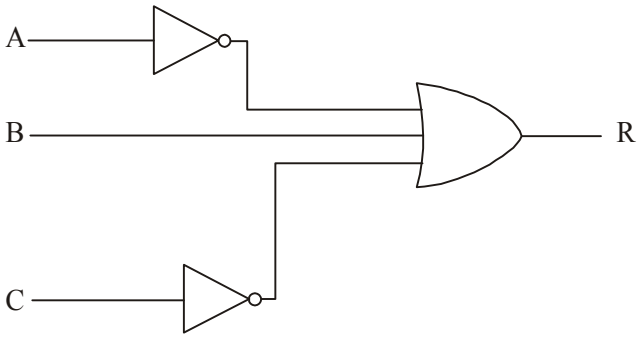

Fig.2

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SECTION-C

7) a) State the use of following synchro system component and also explain the construction operation of these components. (05 marks)

   i) E and I transformer

   ii) Inductance transmitters

   b) Discuss the function of following registers in microprocessor: (05 marks)

   i) General purpose register

   ii) Flag register

   iii) Program counter

8) a) Draw the block diagram of optical communication system and describe the function of each block. (05 marks)

   b) Explain the working of Light Emitting diode in detail. (05 marks)

9) a) Explain in detail the differences between class A, B and C amplifiers. (05 marks)

   b) What are the applications of Analogue to Digital converters? (05 marks)

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.

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