KUMARAGURU
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Register Number:……..

B.E DEGREE EXAMINATIONS: NOV/DEC 2014

(Regulation 2009)

Sixth Semester

AERONAUTICAL ENGINEERING

AER113: Avionics

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. The capability of a new design of equipment to be successfully installed and operated in place of older, less capable equipment is ----------
   a) Interchangeability b) Compatibility
   c) Retrofittability d) Affordability
2. . ---------- is used to automate the background tasks essential for aircraft's safe and operation
   a) Navigation management b) Autopilot
   c) House keeping management d) Flight management
3. Which one is a non maskable interrupt in 8085 microprocessor?
   a) TRAP b) INTR
   c) RST 7. 5 d) RST 6.5
4. ----- needs an extra circuit to refresh the memory.
   a) SRAM b) DRAM
   c) EPROM d) EEPROM
5. Maximum operating speed of MIL STD 15553 B data bus is -------
   a) 1 Mbps b) 2 Mbps
   c) 100 Kbps d) 10 Mbps
6. ---------- architecture can have multiple processors throughout the aircraft.
   a) centralised b) federated
   c) disjoint d) distributed

7. --------- displays are gas discharge displays.

a) Liquid crystal b) Light emitting diode

c) Plasma panel d) Electroluminescent

8. ------- is a system which enables the pilot to enter data and control the operation of aircraft's avionics systems by means of speech.

a) DVI b) Tactile control

c) Eye tracker d) All the above

9. ---------- are receivable worldwide owing to their low propagation attenuation.

a) VLF b) MF

c) HF d) VHF

10. Gyros and accelerometers are used as sensors in ---------- navigation systems.

a) Doppler b) Hyperbolic

c) Terrain reference d) Inertial

PART B (10 x 2 = 20 Marks)

11. What are the major drivers for avionics in civil transport aircraft.
12. Avionics equipments are different from ground based equipments. Justify
13. How digital computers are used in modern avionics systems?
14. Express the need for aliasing.
15. State the need for Manchester II bi-phase encoding?
16. Interpret the need for two different speeds in ARINC 429 bus?
17. Express the need for DVI.
18. List the advantages of EL displays over plasma panel displays.
19. How are reliability and maintainability related?
20. Bring out the need for communication system in civil aircraft?

PART C (5 x 14 = 70 Marks)

21. a) Illustrate the need for avionics in civil aircrafts, military aircrafts and spacecrafts.

(OR)

b) Build a typical avionics system and explain its different subsystems.

22. a) Outline the architecture of 8085 microprocessor architecture and infer its features.

(OR)

b) (i) Discuss the salient features of various memories used in digital computer. (10)

(ii) List out the steps involved to interface the memory devices with microprocessor. (4)

23. a) Discuss the evolution of Avionics architecture and compare the various architecture bringing their merits and demerits.

(OR)

b) (i) Prepare the word formats and message formats in MIL STD 1553B. (8)

(ii) Discuss the data transmission in ARINC 629 in detail. (6)

24. a) (i) Categorize the various CRTs used in civil and military aircraft and explain them in detail. (8)

(ii) Express how multifunction keyboard saves space and offers flexibility. (6)

(OR)

b) What is Head Up display and explain its principle of operation with a neat sketch. What are its limitations and how are they overcome in modern technology?

25. a) With a block diagram, discuss in detail about fly by wire flight control system. Also mention its advantages over conventional flight control system.

(OR)

b) (i) Summarize the need for Certification and identify the various steps involved in certification of avionics system. (7)

(ii) Explain Radar Electronic warfare in detail. (7)

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