

Seat No: _____

Enrollment No: _____

PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
B.Tech. Winter 2022 - 23 Examination

Semester: 7
Subject Code: 203101430
Subject Name: Avionics

Date: 06/10/2022
Time: 10:30am to 1:00pm
Total Marks: 60

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Objective Type Questions - (All are compulsory) (Each of one mark) (15)

1. A transmitted radio wave will have a plane wave front:
 - (a) in the near field
 - (b) in the far field
 - (C) close to the antenna.
 - (d) none of these
2. An isotropic radiator will radiate:
 - (a) only in one direction
 - (b) in two main directions
 - (c) Uniformly in all directions.
 - (d) all of the above.
3. A receiver in which selected signals of any frequency are converted to a single frequency is called a:
 - (a) wideband TRF
 - (b) multi-channel receiver
 - (c) Superhet receiver.
 - (d) none of these
4. The angle between successive phase changes of a D8PSK signal is:
 - (a) 45°
 - (b) 90°
 - (c) 180°
 - (d) 360°
5. The typical bandwidth of an aircraft HF SSB signal is
 - (a) 3.4 kHz
 - (b) 7 kHz
 - (c) 25 kHz
 - (d) 30 kHz
6. In which way radar has been helpful in flying of aircraft -----.
7. How do we increase range capability of the radar -----.
8. What are “blind zones” in the radar pickup -----.
9. How do we suppress side lobes -----.
10. TACAN stands for -----.

11. DME is based on which type of radar?
12. VOR operates in which frequency range?
13. Define Doppler effect.
14. Define avionics.
15. Radar works on which frequency range?

Q.2 Answer the following questions. (Attempt any three) **(15)**

- A) What do you understand by avionics systems? For what purposes they are installed in aircrafts and helicopters?
- B) Explain the CRT, HUD, HMD, LED, glass cockpit.
- C) How Avionics system is useful for communication and navigation purposes for aviation industry?
- D) Enlist and shortly explain applications of onboard avionics system.

Q.3 A) Explain Instrument landing system in detail with suitable diagram. **(07)**

B) Explain Global Positioning System in detail with suitable diagram. **(08)**

OR

B) How is it integrated with VOR so as to be called VORTAC? Which all special services are provided to military aircrafts? **(08)**

Q.4 A) What is the principle of direction finding? What is automatic direction finding? Explain ADF with a simple diagram. What errors are encountered in direction finding? **(07)**

OR

A) With neat sketch explain a system which helps pilot to land an aircraft at night or in low visibility. **(07)**

B) What is the importance of avionics in the present day aircrafts? As an avionics incharge in an airline, which all systems and sub-systems are you expected to look after? **(08)**