Seat no: _____   Enrolment no: _____

CVM UNIVERSITY
M.Sc. Geoinformatics, Sem-1st
Examination February 2021
Course Code: 101400102, **Paper Title:** Principles and Applications of GPS

Date: 24th Feb. 2021   **Time:** 02:00 PM to 04:00 PM   **TOTAL MARKS:** 60

Note: (1) Attempt all question
       (2) Figure to the Right side indicate marks

                                                                                                              [08]

Q. 1 (A)   **Answer the following multiple choice question.**

(1) Average altitude of GPS satellite from the earth surface is _____
    (A) 20,200 mile   **(C)** 20,200 KM
    (B) 20,200 meter   **(D)** None of the Above

(2) _____ is our own Indian space based augmentation System.
    (A) GAGAN   **(C)** IRNSS
    (B) WASS   **(D)** None of the Above

(3) Gionass Atomic Clock running _____ faster. So, to compensate 5 MHz signal by _____ MHz clock pulse.
    (A) 0.436 nano second, 4.99999999782   **(C)** 0.436 nano second, 5.99999999782
    (B) 0.436 micro second, 4.99999999782   **(D)** 0.436 micro second, 5.99999999782

(4) In GPS signal total 1 nano second error, hence resultant coordinate calculation may contain error of _____ .
    (A) 0.003 meter   **(C)** 0.3 meter
    (B) 0.03 meter   **(D)** 03 meter

(5) For components of a communications _____ is the physical medium on which the signal is carried.
    (A) Output Transducer   **(C)** Both (A) & (B)
    (B) Transmission channel   **(D)** None of the Above

(6) For GPS receiver, SiRF III is _____ with 12 or more parallel channel.
    (A) Chip Set   **(C)** Navigation message
    (B) Software   **(D)** None of the Above

(7) Precise timing is fundamental to an accurate GPS location. The time from the _____ on board each satellite is encoded into the radio signal.
    (A) Crystal oscillator clock   **(C)** Quartz clock
    (B) atomic clock   **(D)** None of the Above

(8) For _____ , GPS system is not useful.
    (A) Moving Aero-plane   **(C)** Boat in far sea
    (B) Underground mining tunnel   **(D)** None of the Above

Q.1 (B)   **Answer the following (Fill in the blank & True / False)**   **[08]**

(1) IRNSS space segment is group of total _____ no. of active satellites.
(2) A Total Electron Content (TEC), measure as free electron per _____ meter.
(3) The main disadvantage of FM is the larger _____ is requires
(4) The accuracy of time transferred in common view is typically _____ ns.

(5) SNR of GPS Signal must be High for batter accuracy. **True / False**
(6) Codebase receiver find position based on coded information transfer by satellite and found by receiver. **True / False**
(7) Amplitude modulation is the process of varying the amplitude of a carrier wave in proportion to the amplitude of a baseband signal. The frequency of the carrier remains constant. **True / False**
(8) For control point survey, surveying is based on geodesy survey. **True / False**

Q.2   **Answer the following.(attempt any six, each two marks)**   [12]

(1) What is cold Startup & Warm startup in GPS Signal?
(2) List Real life any ten Applications of GPS.
(3) Write a note on position & height transformation.
(4) What is S/A in GPS Signal?
(5) What is analog modulation? Explain any one analog modulation with necessary illustration.
(6) What is digital modulation? Explain any one Digital modulation with necessary illustration.
(7) What is control point survey?
(8) What is time transfer & why it is important? List all methods of correct time transfer.

Q.3   Focus on space segment of GPS System and explain how it helps to find location on earth surface using triangulation method with necessary diagrams.   [08]

OR

Explain Navigation message of GPS system in Detail with sub frames.   [08]

Q.4   Give Complete Classification of GNSS Positioning according Applications.   [08]

OR

Explain Kepler's three laws of motion with necessary illustration of diagram.   [08]

Q.5   Write a detail note on super heterodyne receiver block diagram, also explain task performed by each individual block.   [08]

OR

What is software define GPS? How GIS – GPS Unification helps in mobile applications?   [08]

Q. 6   Explain Fleet navigation using GPS-GIS system.   [08]

OR

Write a note on volcano detection & tectonics plate movements for earthquake using GPS Technology.   [08]

-: All The Best:-