1904E097

Candidate's Seat No :_____

Integ M.Sc. in App Geo Sem-6 Examination

AGL 309

Remote Sensing and GIS

Time : 2-00 Hours] **April 2022** **[Max. Marks : 50**

Instructions: All questions in **Section –I** carry equal marks.
Attempt any **Three** questions in **Section-I.**
Questions I in **Section-II** is **COMPULSORY.**

Section-i

Q-I	**A** Explain the concept of projection systems and explain the metric properties of maps	7
	B Define orbit and explain in depth the six types of orbits with diagrams (atleast for four types)	7
Q-II	A Explain in detail what is GIS, its role and significance with special emphasis to earth sciences. Also explain all the components of GIS system in detail.	7
	B Explain the concept of organizational context of GIS	7
Q-III	A Explain in detail how remote sensing can be applied in the field of geology. In addition, also explain giving atleast 6 fluvio-morphological examples.	7
	B Providing at least two examples of each rock type, explain in depth application of RS and GIS in the identification, interpretation, mapping and analysis of igneous, sedimentary and metamorphic rocks.	7
Q-IV	A Define stereoscope, stereoscopy, photogrammetry, depth perception, stereoscopic vision, binocular and monocular vision, parallax, parallactic angle, Porro-Koppe's Principle, fiducial marks and radial distortion	7
	B State the significance of RS with respect to forestry, hydrology, urban planning and development	7
Q-V	A Explain in detail the concepts of stereoscopy and parallax. Also explain why parallax removal is essential.	7
	B Define digital elevation model (DEM). Explain in detail generation of DEM model using GIS techniques and explain the significance of DEM with respect to fluvial and glacial geomorphology.	7
Q-VI	A Define scattering and explain the three scattering mechanisms. Also state the significance of RS with respect to meteorology and soil science	7
	B Explain in depth the concepts of vertical exaggeration and relief displacement	7
,Q-VII	**A** Explain in detail levels of data processing and different types of data formats	7
	B Explain in detail the concepts of spheroids and spheres, datum and coordinate systems	7
Q-VIII	**A** Explain using diagram the three essential requirements for RS, explain each in detail	7
	B What is aerial imagery, write detail on the types of aerial imagery based on camera axis. Explain raster and vector data formats (definition, acquisition)	7

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Section II

QIX	MCQs	8

1) Most _____ vein deposits are accompanied by hydrothermal alteration of the adjacent country rocks.

a. Mesothermal
b. Hydrothermal
c. Epithermal
d. Hypothermal

2) Boron and its compounds occur as borate minerals in the crust and brine of certain _____ deposits and in modern dry salt lakes

a) Vein
b) alteration
c) hydrothermal
d) evaporite

3) Iron oxide in a sandy loam soil causes an _____ in reflectance in the red portion of the spectrum and a _____ in near-infrared reflectance
a) Increase and decrease
b) Decrease and increase
c) Increase and increase
d) Decrease and decrease

4) In an ellipse, _____ radius is half the major axis and _____ radius is half the minor axis.

a) Polar, equatorial
b) Equatorial, polar
c) Equatorial, spherical
d) Spherical, polar

5) The _____ consists of a series of numbers that define the shape and size of the ellipsoid and it's orientation in space.
a) geoid
b) projection
c) datum
d) coordinate

6) GIS essentially performs _____ processes or tasks
a) Four
b) seven
c) Eight
d) Five

7) Distortion, in digital photography, is the deviation of an observed pixel from its predicted coordinate in a_____
a) 1D plane
b) 2D plane
c) 3D palne
d) 4D plane

8) _____ is a passive non-scanning, non-imaging sensor type
a) Laser water depth meter
b) Real aperture radar
c) Magnetic sensor
d) Microwave altimeter