NPTEL Online Certification Courses

Indian Institute of Technology Kharagpur

MACHINE LEARNING FOR SOIL AND CROP MANAGEMENT

Assignment- Week 10

TYPE OF QUESTION: MCQ/MSQ

Number of questions: 15 **Total mark: 15 X 1 = 15**

QUESTION 1:

_____ model (1941) indicates five factors of soil formation: (1) climate (cl); (2) organisms (o); (3) relief (r); (4) parent material (p); (5) time (t).

a. McBratney's
b. Joffe's
c. Jenny's
d. None of the above

Correct Answer: c

Detailed Solution: Jenny's model (1941) indicates five factors of soil formation: (1) climate (cl); (2) organisms (o); (3) relief (r); (4) parent material (p); (5) time (t).

QUESTION 2:

Which is a part of SCORPAN + e MODEL?

a. climate
b. parent material
c. location
d. All of the above

Correct Answer: d

Detailed Solution: Climate, parent material, location all are a part of SCORPAN + e MODEL;

QUESTION 3:

The full name of DEM is

a. Digital elevation model
b. Dynamic elevation model
c. Dynamic estimation model
d. None of these

Correct Answer: a

Detailed Solution: DEM is digital elevation model.

QUESTION 4:

_____is used to measure precise distance of an object on the earth's surface.

a. RADAR
b. LIDAR
c. DSM
d. None of the above

Correct Answer: b

Detailed Solution: LiDAR is used for measuring the exact distance of an object on the earth's surface and is used for generating accurate 3 dimensional information about the earth surface and the target object.

QUESTION 5:

A DEM is a representation of the _____ surface of the earth.

a. crop covered
b. bare ground
c. forest covered
d. buildings covered

Correct Answer: b

Detailed Solution: A DEM is a representation of the bare ground (bare earth) topographic surface of the Earth excluding trees, buildings, and any other surface objects.

QUESTION 6:

Wetness index or CTI is a common _____ parameters used as covariates in DSM.

a. climate
b. crop
c. soil chemical
d. terrain

Correct Answer: d

Detailed Solution: Wetness index or CTI is a common terrain parameter used as covariates in DSM.

QUESTION 7:

Which is the example of vector data?

a. Point
b. Line
c. Polygons
d. All of the above

Correct Answer: d

Detailed Solution: Point, Line and Polygons can be considered as vector data

QUESTION 8:

Which of the following statement is True?

a. A layer is stored on a computer as a shapefile (.shp) or layer file (.lyr), with its corresponding database stored in a separate file (.dbf).
b. Raster data works with pixels; Vector data consists of coordinates.
c. Raster file size can result larger than vector data sets with the same phenomenon and area
d. All of the above

Correct Answer: d

Detailed Solution: In a GIS, A layer is stored on a computer as a shapefile (.shp) or layer file (.lyr), with its corresponding database stored in a separate file (.dbf). Raster data works with pixels; Vector data consists of coordinates and raster file size can result larger than vector data sets with the same phenomenon and area

QUESTION 9:

Which of the following statement is false?

a. A geographic coordinate system is a system that uses a three-dimensional spherical surface to determine locations on the Earth.
b. A spheroid is a sphere that is based on a circle.
c. A coordinate system can be defined by either a sphere or a spheroid approximation of the Earth's shape.
d. Any location on Earth can be referenced by a point with longitude and latitude coordinates.

Correct Answer: b

Detailed Solution: A geographic coordinate system is a system that uses a three-dimensional spherical surface to determine locations on the Earth. A spheroid is an ellipsoid that is based on an ellipse, whereas a sphere is based on a circle. Any location on Earth can be referenced by a point with longitude and latitude coordinates.

QUESTION 10:

A _____ is a set of values that defines the position of the spheroid relative to the center of the Earth.

a. Latitude
b. Longitude
c. Datum
d. DEM

Correct Answer: c

Detailed Solution: A datum is a set of values that defines the position of the spheroid relative to the center of the Earth. The datum provides a frame of reference for measuring locations and defines the origin and orientation of latitude and longitude lines.

QUESTION 11:

Which is/are the integral part of Geostatistics?

a. field observations/sampling
b. auxiliary information
c. Computer program
d. all of these

Correct Answer: d

Detailed Solution: Geostatistics is a class of statistics that deals with analytical production of high-resolution maps by using field observations, auxiliary information and a computer program that computes values at locations of interest/a study area.

QUESTION 12:

Universal model of variation has

a. Deterministic component
b. spatially correlated random component
c. pure noise (measurement error)
d. All of the above

Correct Answer: d

Detailed Solution: Universal model of variation has deterministic component, spatially correlated random component and pure noise (measurement error).

QUESTION 13:

Which of the following spatial prediction model comes under statistical (probability) models

a. Inverse distance interpolation
b. Splines
c. Thiessen polygons
d. kriging

Correct Answer: d

Detailed Solution: Kriging comes under statistical (probability) models. Whereas, Inverse distance interpolation, splines and thiessen polygons are empirical or mechanical models

QUESTION 14:

A _____ describes the differences between neighbouring values. It's a tool used in geostatistics to quantify the spatial dependence or spatial autocorrelation of a dataset.

a. Variogram
b. Semi variance
c. Variance
d. None of the above

Correct Answer: a

Detailed Solution: A variogram describes the differences between neighbouring values. It's a tool used in geostatistics to quantify the spatial dependence or spatial autocorrelation of a dataset.

QUESTION 15:

Which of the following statement is false?

a. The difference between the sill and the range represents the amount of observed variation that can be explained by distance between observations.
b. A standard version of kriging is called ordinary kriging (OK).
c. Range is the point at which the semivariance stops increasing.
d. None of the above

Correct Answer: a

Detailed Solution: The difference between the sill and the nugget represents the amount of observed variation that can be explained by distance between observations. A standard version of kriging is called ordinary kriging (OK). Range is the point at which the semivariance stops increasing.