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NPTEL

Courses » Digital elevation models and applications

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Unit 5 - Week-4

Course outline

How to access the portal

Week-1

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Week-4

● DEM Based Surface Hydrologic Modelling-2

● DEM and DAM Simulation and Its Application In Ground Water Hydrology

● Applications of DEMs In Solar and Wind Energy Potential Estimations

● Applications of DEMs in Viewshed and Flood Hazard Mapping

● DEMs Sources, Limitations and Future of Digital Elevation Models

○ Quiz : Assignment: Week 4

● Feedback Week-4

● Answer Key

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Assignment: Week 4

The due date for submitting this assignment has passed. **Due on 2018-03-07, 23:59 IST.**

Submitted assignment

Assignment: Week 4

1) A DEM is a raster representation of a _____ surface?   **1 point**

○ Discrete
○ Continuous
○ Triangulated
○ Quadtree

No, the answer is incorrect.
Score: 0

Accepted Answers:
Continuous

2) The DEM could be generated through techniques such as photogrammetry, Lidar, InSAR,   **1 point**
land surveying, etc.?

○ True
○ False

No, the answer is incorrect.
Score: 0

Accepted Answers:
True

3) Hillshading may be created using a DEM to simulate?   **1 point**

○ Slope
○ Aspect
○ Watershed
○ Relief

No, the answer is incorrect.
Score: 0

Accepted Answers:
Relief

4) Grid (DEM) cell values can be: **1 point**

○ Only integer numbers
○ Only real (floating) numbers
○ Only positive integer numbers
○ Both positive and negative integer or real (floating) numbers

No, the answer is incorrect.
Score: 0

Accepted Answers:
Both positive and negative integer or real (floating) numbers

5) DEMs are commonly built using data collected using remote sensing techniques, but they may also be built from land surveying: *1 point*

- ○ True
- ○ False

No, the answer is incorrect.
Score: 0

Accepted Answers:
True

6) DEMs are used often in geographic information systems, and are the most common basis for *1 point* digitally produced:

- ○ Relief maps
- ○ Pollution maps
- ○ Population maps
- ○ None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
Relief maps

7) There is no universal usage of the terms digital elevation model (DEM), digital terrain model *1 point* (DTM) and digital surface model (DSM) in scientific literature:

- ○ True
- ○ False

No, the answer is incorrect.
Score: 0

Accepted Answers:
True

8) Most of the terrain data providers (e.g. USGS, ERSDAC, CGIAR, ISRO-NRSA) use the *1 point* term?

- ○ DSM
- ○ DTM
- ○ DEM
- ○ DES

No, the answer is incorrect.
Score: 0

Accepted Answers:
DEM

9) All datasets which are captured with satellites, airplanes or other flying platforms are *1 point* originally:

- ○ DTMs
- ○ DEMs
- ○ DSMs
- ○ None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
DSMs

10) DEMs can be generated through number of ways, however most preferred method of generating DEMs is: *1 point*

○ Contours
○ Remote sensing based
○ Aerial photographs
○ None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
Remote sensing based

11) DEMs can also be generated using the following method: *1 point*

○ Stereo-pairs
○ Thermal infrared data
○ Radar data pairs
○ All of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
All of the above

12) Spatial interpolation is the observation that points close together in space are more likely to have ____ values than points far apart: *1 point*

○ Different
○ Inverse
○ Similar
○ None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
Similar

13) Spatial Interpolation techniques: *1 point*

○ Turns raw data into useful information by adding greater informative content and value
○ Reveals patterns, trends, and anomalies that might otherwise be missed
○ Provides a check on human intuition
○ All of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
All of the above

14) Functional surfaces can be used to represent: *1 point*

○ Terrestrial surfaces that depict the earth's surface
○ Statistical surfaces that describe demographic
○ Mathematical surfaces that are based on arithmetic expressions
○ All of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
All of the above

15) No data' is a: *1 point*

○ Zero

○ Always equal to 1
○ Value
○ Nothing

No, the answer is incorrect.
Score: 0

Accepted Answers:
Value

16)The assumption that makes _____ a viable option is that spatially distributed objects are   *1 point*
spatially correlated; in other words, things that are close together tend to have similar characteristics?

○ Geoprocessing
○ Georeferencing
○ Geocoding
○ Interpolation

No, the answer is incorrect.
Score: 0

Accepted Answers:
Interpolation

17)Inverse Distance Weighted (IDW) interpolation method, the closer a point is to the center of   *1 point*
the cell being estimated, the ……. influence, or weight, it has in the averaging process?

○ More
○ Equal
○ Similar
○ Less

No, the answer is incorrect.
Score: 0

Accepted Answers:
More

18)IDW interpolation assumes that the variable being mapped _____ in influence with distance   *1 point*
from its sampled location.:

○ Increases
○ Decreases
○ Remain same
○ Deduces

No, the answer is incorrect.
Score: 0

Accepted Answers:
Decreases

19)In IDW interpolation, a barrier is a _____ dataset used as a breakline that limits the search for *1 point*
input sample points:

○ Point
○ Polygon
○ Pixel
○ Polyline

No, the answer is incorrect.
Score: 0

Accepted Answers:
Polyline

20)What reflects the presence of fault lines, cliffs, streams, and other features that create linear *1 point*
discontinuity in surfaces, also control how surfaces are generated?

○ Pixel

○ Point

○ Cell

○ None of the above

No, the answer is incorrect.

Score: 0

Accepted Answers:

None of the above

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