

## Geomatics Engineering Department

### Digital Mapping Question Bank

- 1- What type of information concerning the map coordinate system should/could be shown on a map? Explain in details.
- 2- Specifically, define “horizontal datum”; then, explain the difference between an ellipsoid and horizontal datum.
- 3- What is vertical datum? And why are there several vertical datums defined?
- 4- Can we approximate the “Geoid” with a mathematical model? Why?
- 5- What are the justifications for using digital mapping?
- 6- How does a (non-geocentric) spheroid approximate the “Geoid” in compare to the (geocentric) spheroid?
- 7- How many translations are conducted during each datum transformation methods? Explain in detail.
- 8- Why are some map projections using mapping zones? How to determine the zone(s) of the UTM for a certain country?
- 9- Projection transformation causes errors in particular characteristics of features. **Identify** those characteristics and then explain in detail, the usual approach that normally applies to preserve them.
- 10- How does a (non-geocentric) spheroid approximate the geoids in compare to the (geocentric) spheroid? Then, accordingly, explain reasonably **why** many countries use the same spheroid although they are on different origin?
- 11- Two concerns are principle in the computing process of coordinate transformation from land surveying perspective. **Identify** them first, and then show how they could be transferred on a particular projection in term of map projection advantage.
- 12- The accuracy of the measurement generated by manual digitizer is lower than that generated by automatic digitizer.
- 13- The conformal projection is one of the most significance in land surveying.
- 14- What type of information concerning the map coordinate system should/could be shown on a map? Explain in details.
- 15- Specifically, define “horizontal datum”; then, explain the difference between an ellipsoid and horizontal datum.

16- Precisely identify the cause of the followings:

- 1) Image/map internal distortion.
- 2) Error consists at encoding input data into GIS.

17- How do you assign coordinates to a data set with unknown coordinate? Explain in details, what is requiring for the conversion from geodetic to Cartesian coordinates? Could it done straightforward?

18- Discuss to what extent the use of vector or raster input data will affect your analyses in a digital map project?

19- What is the fundamental “element” used in both vector system storage and raster system storage separately? Then, briefly explain the similarities and differences between the two fundamental elements.