[24-HKCDFSN-24J]

PGCGI EXAMINATIONS 2024(S)

Fundamentals of GIS

[GI 01]

Full Marks: 70

Time: 3 hours

The figures in the margin indicate full marks for the questions

(1) Answer ***any five*** from the following questions :(each in around 50 words) **2x5=10**

(a) What are the major fields of Geo-informatics?

(b) What are the properties of map?

(c) Define orthomorphic map projection and give an example of it.

(d) Which model of the earth is the best for GIS?

(e) What is the basic difference between Computer Aided Design (CAD) and GIS?

(f) Mention the types of dataset of a geodatabase.

(2) Answer ***any four*** from the following questions (each within 100 words) **3x4=12**

(a) What are the various datatypes used in GIS? Mention the characteristics of any one of them.

(b) Discuss some widely used raster data file formats.

(c) What are the various sources of DEM data? Briefly mention the uses of DEM.

(d) What are the various components of GIS? Mention the role of each component.

(e) Differentiate between General Reference Map and Physical Map.

(3) Answer ***any four*** from the following questions (each within 200 words) **6x4=24**

(a) Geo informatics is a multidisciplinary science"- Justify the statement.

(b) Write a brief note on present ay significance of map.

(c) Describe a commonly used map projection in GIS. Mention its properties.

(d) Why ellipsoid is the better choice in modelling the earth? What is flattening of an ellipsoid?

(e) Explain the planar coordinate system used in GIS.

(4) Answer ***any three*** from the following questions (each in around 300 words) **8x3=24**

(a) Describe the major categories of applications of GIS. How GIS can be used as decision support system in resource planning and management?

(b) "A geodatabase management system is the heart and soul of GIS"-Explain the statement.

(c) Describe the role of topological relationships of GIS data.

(d) Explain the role of spatial and nonspatial data in GIS.

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[24-HKCDFSN-24J]
PGCGI EXAMINATIONS, 2024(S)

Basics of Remote Sensing and GNSS

[GI02]

Full Marks: 70

Time: 3 hours

The figures in the margin indicate full marks for the questions

(1) Answer ***any five*** from the following questions :(each in around 50 words) **2x5=10**

(a) Write the full form of 'DGPS'.

(b) Mention any four factors affecting the accuracy of the GPS data.

(c) Define spatial resolution.

(d) What is the wave length of visible spectral region?

(e) Write the full form of 'NRSC'.

(f) Define thermac Remote Sensing.

(2) Answer ***any three*** from the following questions (each within 120 words) **4x3=12**

(a) Explain spectrac resolution and temporal resolution with example.

(b) Explain the Application of thermal remote sensing data with examples.

(c) Briefly explain the factors influencing radar backscatter.

(d) Mention atleast four advantages of GPS surveying over conventional surveying method.

(3) Answer ***any three*** from the following questions (each within 200 words) **6x4=24**

(a) Write a short note of spectral signature.

(b) What is an Aerial Photography? Explain the types of Aerial Photographs.

(c) Elaborate the applications of hyperspectral remote sensing.

(d) Elaborate the different segments of GPS.

(e) Differentiate between SLAR (Side Looking Airborne Radar) and SAR (Synthetic Aperture Radar).

(4) Answer ***any three*** from the following questions (each in around 300 words) **8x3=24**

(a) Explain the elements of visual image interpretation with examples.

(b) Discuss the factors affecting the accuracy of the GPS data.

(c) Define remote sensing platform. Discuss the main types of platforms used in remote sensing.

(d) Provide a detail overview of India's remote sensing programme.

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[24-HKCDFSN-24S]

PGCGI EXAMINATION 2024(S)

Post Graduate Certificate in Geo-informatics Examinations, 2024(S)

Spatial Analysis and Application in Geo-information

[GI 03]

Full Marks: 70

Time: 3 hours

The figures in the margin indicate full marks for the questions

(1) Answer **any five** from the following questions :(each in around 50 words) **2x5=10**

(a) Define spatial data model. Name two major data models in GIS.

(b) What are the different categories of GIS analysis techniques?

(c) Differentiate between union and intersection operation in GIS.

(d) What are the problems associated with analytical modelling in GIS?

(e) Define resampling and common methods of resampling.

(f) What is Principal Component Analysis?

(2) Answer any four from the following questions (each within 100 words) **3x4=12**

(a) Explain the term topology. What are the topology rules in data model?

(b) Discuss the vector overlay analysis in GIS.

(c) Explain the application of spatial buffering in GIS

(d) Discuss the key modules in SDSS.

(e) How geospatial tools help in climate studies?

(3) Answer ***any four*** from the following questions (each within 250 words) **6x4=24**

(a) Explain the importance of data input and data editing in GIS.

(b) Define Process models. Discuss different types of process model used in GIS analysis.

(c) Why is subsetting or clipping required in image processing? Write about the procedure of subsetting in image processing.

(d) Discuss the methodological differences between unsupervised and supervised classification.

(e) Explain the application of remote sensing in hydrological sciences .

(4) Answer ***any three*** from the following questions (each in around 300 words) **8x3=24**

(a) Discuss different types of Geospatial measurements. Explain briefly about the different kinds of neighbourhood operations.

(b) What is image enhancement? Briefly describe the different techniques involved in image enhancement.

(c) What is accuracy assessment? Why is it necessary to perform? Discuss the overall process of computation of error matrix.

(d) Explain various applications of geoinformatics in agriculture, water resource and urban planning.

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