



NATIONAL INSTITUTE OF RURAL DEVELOPMENT AND PANCHAYATI RAJ

Rajendranagar, Hyderabad- 500 030

Centre for Post Graduate Studies & Distance Education

POST GRADUATE DIPLOMA IN GEO-SPATIAL TECHNOLOGICAL APPLICATIONS IN RURAL DEVELOPMENT  
(PGD-GARD) Batch-5, (2020), I<sup>st</sup> Semester

Course: GARD 501: Geographic Information System

### **ASSIGNMENT QUESTIONS**

Total Marks: 30

#### Instructions:

- i. Answer any Five Questions, at least one from each Block.
- ii. Each question carries Six marks.
- iii. Length of an answer should ideally be 400-500 words.
- iv. Write neatly in your own legible handwriting. The answers should not be copied from the study material.
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#### **I. Block 1- Introduction to GIS Technology**

1. Define GIS with its History.
2. Explain spatial features of Point, Line and Polygon in raster and vector data models?
3. Explain the components about Data Capture and Data Analysis operations of GIS.
4. Describe the Spatial Relationship and Behavior of Data Models.
5. What are the different kinds of architectural design of GIS?

#### **II. Block 2- Datum & Map Projections**

1. What is a Datum? Explain various Datums in detail.
2. Brief about the Reference Coordinate system with its types.
3. What is a projection? What are the three major projections and Explain Mercator projection?
4. Distinguish between 2D & 3D Geometric Transformations.

#### **III. Block 3- Data Models and Data Structure**

1. Define Topology with its types and Data Structure.
2. Explain Spatial Entities and Data Models.
3. Explain various Data formats in GIS and Data transformation process.
4. Write a brief note on Database Models and their types.
5. Explain any two types of Raster data file formats with its examples.
6. Explain the sources of Spatial Data Collection in detail.

#### **IV. Block 4- Spatial Data Analysis**

1. What is the difference between Vector and Raster Data analysis?
2. Explain Terrain Analysis with different methods.
3. Explain Map design with its components.
4. Differentiate OLAP and OLTP in detail?
5. Brief about Virtual GIS and DSS with its different management systems.

#### **V. Block 5- Geo-Spatial Services**

1. Explain the COTS software with specific strength on Image Processing?
2. Describe different categories of OGC GIS services.
3. Explain a three of each Global and Indian GIS web portals with examples
4. What are the New Applications and Users of GIS Technology?

Note:

1. Last date for submission of Assignments (Hard copies) is **May 30, 2020.**  
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(PGD-GARD) Batch-5, (2020), I<sup>st</sup> Semester

Course: GARD 502: Satellite Remote Sensing

### **ASSIGNMENT QUESTIONS**

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#### **I. Block 1 - Element of Satellite Remote Sensing**

1. Describe Remote Sensing with its Scope, limitations and various applications.
2. What are the different ways in which the energy interacts with the atmosphere?
3. What is spectral radiance? Define Wavelength and discuss the importance of different spectral reflectance in remote sensing.
4. (a) Define EMR?  
(b) Tabulate the major regions of EM Spectrum.

#### **II. Block 2 - Satellite, Platforms and Sensors**

1. What is Remote Sensing and describe briefly its historical development.
2. Explain about the domains of information obtained from Remotely sensed data.
3. Discuss the difference between Aerial and Satellite platforms.
4. Describe Some of the Present and Future Foreign Satellite/Sensor Systems.
5. Describe the difference between IRS 1A/1B and IRS 1C /1D sensors with their specifications?

#### **III. Block 3 - Visual Interpretation Techniques and Digital Image Processing**

1. Describe the elements of Image Interpretation with appropriate examples.
2. Brief about different types of errors and corrections involved in Image Displaying.
3. Explain various operations under Digital Image Enhancement.

4. What is Image Classification? Briefly discuss two different methods of classification techniques.
5. Discuss the methodology for Photogrammetric processing of a satellite Stereo Imagery

#### **IV. Block 4 - Application of Remote Sensing in Rural Development**

1. What type of Geospatial data is useful for 'land and water' applications? Elaborate with examples of their utilization for Rural Development?
2. Indicate two technological trends which may be used for natural disaster management in future.
3. How the Remote Sensing and GIS useful for Wildlife Management.
4. Describe any two techniques of assessing land use and land cover change.

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(PGD-GARD) Batch-5, (2020), I<sup>st</sup> Semester

Course: GARD 503: Global Positioning System

### **ASSIGNMENT QUESTIONS**

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#### **I. Block 1 - Principles of GPS**

1. What is Precise Position Service and how it differs from Standard Position System?
2. Brief on Navigation Methods as a historical perspective.
3. Explain the types and their functions of the segments in GPS?
4. What are the differences and similarities between ancient and modern navigation?
5. Give a brief note on IRNSS and its services.

#### **II. Block 2 - Operations of GPS**

1. Discuss the role of GPS in navigation & describe the frequency band of different GPS receivers.
2. Explain the Navigation Message with its all components.
3. Discuss the accuracy and limitation of GPS. What is the difference between precision and accuracy?
4. Explain different classifications in 'Modes of GPS'.
5. Give an account of ITRF with its different techniques.

#### **III. Block 3 - Application of GPS**

1. Write a few applications of GPS in Forestry & wildlife.
2. What is an Asset Mapping and the application of GPS in Asset Mapping?
3. Historical Perspective of Cadastral Surveys in India?
4. Write the advantages of GPS in Aviation and in Space Navigation.
5. What are the limitations of GPS tracking? Write a short note on Passive GPS Tracking System.

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Course: GARD 504: Rural Development

### **ASSIGNMENT QUESTIONS**

Total Marks: 30

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#### **I. Block 1 - Concepts, Measures, Indicators of RD**

1. What are the objectives of Rural Development? Discuss the basic elements of Rural Development?
2. Write brief note on PRA. What are the advantages and limitations of wealth ranking done using PRA.
3. What are the aspects that can be taken for successful economic development?
4. What is social development? Write a brief note on Social Structure.
5. What are the problems in measuring rural development? Which is the most appropriate measures of development and why?

#### **II. Block 2 - Rural Poverty**

1. What is a Rural Poverty? Discuss brief about issues of Rural Poverty.
2. Discuss effective approaches for Rural Development?
3. Discuss Absolute Poverty Line versus Relative Poverty Line? Write a brief note on Indian Poverty Line?
4. What are aspects that can be taken in measuring poverty? Discuss the factors affecting Poverty?
5. Write a brief note on Employment Assurance Scheme & Wage Employment Programmes?

#### **III. Block 3 - Poverty Alleviation Programmes**

1. Bring out the types of anti-poverty measures initiated by the Government of India.
2. Explain the salient features of PMGSY.
3. Briefly discuss about the National Drinking Water Programme (NRDWP).
4. Explain in brief the problems of rural housing in India. Discuss the National Housing Policy?
5. Illustrate the Salient Features of the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) and Discuss Convergence with IWMP.

#### **IV. Block 4 - Government of India Flagship Programmes**

1. Comment on IWMP progress on any of the State.
2. Briefly mention the main components of the NLRMP? Discuss the benefits for the Citizens from NLRMP Programme.
3. Explain Computerization of Registration? Discuss Land records management systems Modernization?
4. Discuss about the Non Timber Forest Produce?

#### **V. Block 5 - Development of Rural Women and Children**

1. Comment on the health practices and problems in rural India
2. Describe shortly the National Rural Health Mission (NRHM) set up.
3. Give a brief note on the Micro-Credit, Poverty Reduction and Empowerment.
4. Explain the Scale of Micro-Credit in India and Major Initiatives in Rural Credit in India?
5. Explain the Constitutional Provisions for Education in India and Give a brief note on Sarva Shiksha Abhiyan.

#### **VI. Block 6 - Rural Development in Environmental Protection**

1. What do you mean by Strategic Environmental Assessment under EIA?
2. Describe the Environmental Appraisal Procedure?
3. Explain EIA for Coastal Area Management?
4. Write a short note on the Impact of Agro-Chemicals on Human Health.
5. Explain the Need for Climate-smart agriculture, green agriculture and rural nonfarm activities.
6. Write a short note on the Green technologies and Evergreen Revolution.

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Course: GARD 505: Project Planning and Management

### **ASSIGNMENT QUESTIONS**

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#### **I. Block 1- Project Management & Organization**

- Define project life cycle and what are its phases explain it briefly?
- Define Project? Different types of Projects and its characteristics.
- What are the various organization structures? What does the term organization structure mean?
- Who are Project Managers? What are the responsibilities and skills of Project Manager?
- What are the different types of project organization charts? Discuss.

#### **II. Block 2- Project Initiation**

- Discuss the Non-Discounting and Discounting criteria used for project appraisal. Use examples where required.
- What is time value of money? Explain it in brief?
- What is SWOT analysis? How is it useful in the strategic planning? What are its limitations?
- What is technical analysis? Describe the various components of technical analysis.
- Describe the steps involved in solving the TOPSIS and SAW with an example?

#### **III. Block 3- Project Planning & Implementation**

- Write about the EIA review and monitoring and Audit.
- Define the terms: Linearity, Function, Linear equation and Linear function?
- What are applications of Sensitivity analysis? Write about one in brief?
- What are the different types of WBS structure representations?

#### **IV. Block 4- Network Techniques**

1. Define Earliest Activity Start Time, Earliest Activity Finish Time, Latest Activity Start Time, Latest Activity Finish Time?
2. What is a critical path method? Compare CPM with PERT?
3. Briefly describe the Gantt chart and Milestone chart?
4. (a) What is the slack available on a critical path?  
(b) Does dummy activity consume resources?

#### **V. Block 5-Quality and Risk Analysis**

1. Write short note on (a) CBA (b) Pareto Chart (c) Control Chart (d) Run Chart.
2. Define Risk. What are the different types of Risks?
3. Explain the ways and means of planning and controlling quality.
4. What are the steps involved in decision making and to perform a decision tree analysis?

#### **VI. Block-6-Project Monitoring Evaluation and Control**

1. What are the methods of monitoring and steps involved in monitoring?
2. Write briefly about Evaluation and differences between monitoring & evaluation?
3. What is project control? What are the various aspects of project control?

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