

**NATIONAL INSTITUTE OF RURAL DEVELOPMENT & PANCHAYATI RAJ  
Rajendranagar, Hyderabad – 500 030**

**Post Graduate Diploma in Geo-Spatial Technological Applications in Rural Development  
(PGDGARD)  
4<sup>th</sup> Batch (2019), 1st Semester**

**Last date for submission of Assignments is 31-05-2019**

Title of the course: PGD-GARD

Course No. GARD-401

Course Title: Geographic Information System

**ASSIGNMENT**

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**Total Marks: 30**

**Note: Answer any SIX questions; choose at least ONE from each block.**

- a. Each question carries Five (5) marks.
- b. Assignment should be written on A-4 size with, 1<sup>1/2</sup> space and length of each question should be about 300-500 words.
- c. Write neatly without much correction and in your own legible handwriting.
- d. Wherever necessary include sketches, photographs, tables and graphs etc.
- e. Write clearly Student Name and Enrolment No. on Top of the cover page of the assignment and this should not be bound with other assignments.
- f. The assignment should be sent to Regional Coordinator of the concerned contact centre on or before 31<sup>st</sup> May, 2019.

**Block 1- Introduction to GIS Technology**

1. Define GIS and Differentiate between Analog and Digital GIS.
2. Explain the Components of GIS.
3. Describe the Data Models with examples.
4. Brief the Categories of GIS Architecture.

**Block 2- Datum & Map Projections**

5. What is Geoid? Explain the Types of Height Measurements.
6. Define Datum and explain how it works at Global and Local Areas.
7. What is a CRS? Explain the types of CRS.
8. What is a Map projection? Describe different types of Map projections.
9. Explain Transformations with its characteristics.

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

10. Difference between Spatial and Attribute Datasets in GIS and brief about Topology.
11. What is a Spatial Data Model and Differentiate with their Advantages and Disadvantages?
12. Explain DBMS with its Advantages
13. Discuss about various sources of Non-Spatial data
14. State different types of Data File Formats with examples
15. Methods of Creating Spatial Datasets in detail

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

16. What is a Vector Data Analysis and brief its performance on different operations.
17. Explain Raster Data Analysis and how it operates on various functions.
18. Define Interpolation and explain with different Methods
19. What is a Map? Elaborate with its Elements and Types
20. Explain Data Mining and its functionalities
21. What is SDSS? The components of SDSS in detail.

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

22. Explain the GIS Software with different Types of usage.
23. Brief the Mobile GIS and frame its Architecture?
24. Explain the functioning of popular GIS web portals in India with examples
25. Brief the GIS trends in IT Sector.
26. What are the future trends of GIS for large data processing?

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**4<sup>th</sup> Batch (2019), 1st Semester**

**Last date for submission of Assignments is 31-05-2019**

Title of the course PGD-GARD

**Course No. GARD – 402**

**Course Title: Satellite Remote Sensing-I**

**ASSIGNMENT**

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**Total Marks: 30**

**Note: Answer any SIX questions, choose at least ONE from each block.**

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**Block 1-Element of Satellite Remote Sensing**

1. Define Remote Sensing? Write the historical development of Remote Sensing.
2. (a) Discuss Active and Passive Remote Sensing  
(b) Illustrate with diagram different Elements of Remote Sensing/
3. What is EMS? Illustrate its wavelengths with a Diagram.
4. (a) Define spectral signature?  
(b) Illustrate spectral reflectance of Vegetation, Water and Soil.

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

5. Elaborate on different types of Remote Sensing data acquisition.
6. What is a Satellite? Discuss the difference between Polar orbiting and Geo-stationery satellites.
7. Write an overview on different Platforms used for remote sensing.
8. What is a sensor? Discuss on the classification of sensors.
9. Describe about IRS Sensors and Cartosat satellite Characteristics.
10. What is SARAL? Give a brief account of its Applications.

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

11. What is Image Interpretation? Which of the interpretation elements depend on high spatial resolution of the sensors?
12. What is Digital Image Processing? Explain various Methods of DIP.
13. What is the advantage of band difference and band ratio?
14. What is classification accuracy? Discuss methods to compute classification accuracy?
15. Define Photogrammetry? What are the Principles involved in it.

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

16. Discuss the importance of geospatial technologies in rural development with suitable examples.
17. (a) Give a description of three types of natural disasters in India.  
(b) What are the different stages in disaster management where the technology plays an important role?
18. Discuss impact of climate change on environment.
19. Explain the stages in preprocessing of Change detection with Remote sensing Data

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Title of the course PGD-GARD

**Course No. GARD – 403**

**Course Title: Global Positioning System**

**ASSIGNMENT**

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**Total Marks: 30**

**Note: Answer any Six questions, Two questions from each block.**

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**Block 1- Principles of GPS**

1. Write a brief discussion about history of GPS and its advantages.
2. Write about GPS position services in detail.
3. Explain different types of segments in GPS?
4. Write brief about GPS segment Modernization.
5. Brief different types of Augmentation Systems
6. Distinguish Single Frequency and Dual Frequency GPS Receivers

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

7. Describe GPS satellite signal components and its importance.
8. Describe the different Positioning modes of GPS.
9. What is DGPS? Discuss the application of DGPS.
10. Write briefly about Calendar definition and its relevance for GPS.
11. Describe GPS time and its frequency application?

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

12. Write a few applications of GPS in precision farming.
13. What are community assets and map the assets in your community with a neat diagram?
14. Write a short note on cadastral map and cadastral survey.
15. What is GPS navigation? Describe briefly about on GPS in Navigation.
16. What is GPS tracking? Explain GPS tracking system.
17. Brief on Mobile Phone Tracking.

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Title of the course PGD-GARD

**Course No. GARD – 404**

**Course Title: Rural Development**

**ASSIGNMENT**

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**Block 1- Concepts, Measures, Indicators of RD**

1. (a) Enumerate the objectives of Rural Development  
(b) Discuss Rural Development versus Industrial Development
2. What are the activities of Agro-Based for income generation?
3. What is social development? Write a brief note on social development in rural areas.
4. Explain some common Measures and Indicators of Poverty.
5. What are the different types of deprivations that the HPI is based on?

## **Block 2-Rural Poverty**

6. What is Rural Poverty? Discuss brief about issues of Rural Poverty
7. What is Poverty Line? Brief on Indian Poverty Line with Measures.
8. What are the new schemes proposed under the XI<sup>th</sup> Plan?
9. Write a brief note on Employment Assurance Scheme?

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

10. What is rural poverty? Brief the causes of rural poverty.
11. Explain the components of Bharath Nirman and Briefly discuss any two development programmes for Bharath Nirman.
12. Briefly Discuss the problems of rural housing in India.
13. Illustrate the Salient features of MGNREGA
14. Explain the Allotment of work to Individuals under the development and approvals of work orders.

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

15. Write a note briefly on Convergence of IWMP with other programmes in any one State of your choice.
16. Briefly mention the main components of the NLRMP, under the survey & settlement records?
17. Explain the Salient features of the NLRMP
18. Write about NRLM mission?

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

19. Discuss about NRHM with its outcomes
20. Explain the problems of Micro-credit with its scale in India.
21. Explain the Constitutional Provisions for Education in India.
22. Write a brief note on the National Policy on Education.

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

23. Write a note on EIA concepts and application.
24. Describe in brief on NRM
25. What are the different Adaptation measures taken in Agriculture sector
26. Write briefly on the Green technologies and Evergreen Revolution.

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Title of the course PGD-GARD

**Course No. GARD – 405**

**Course Title: Project Planning & Management**

**ASSIGNMENT**

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**Total Marks: 30**

**Note: Answer any Six questions, Choose ONE question from each block.**

- a. Each question carries Five (5) marks.
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**Block 1- Project Management & Organization**

1. Describe the relation between project phase and project life cycle in detail?
2. Brief about the Enterprise Environmental Factors and Organizational Process Assets?
3. What is Strategic Planning and why it is needed for Project Management?
4. Discuss on various organizational Structures?
5. Explain the Tools and Techniques to Identify Stakeholders
6. What are the different Skills and Responsibilities of a project manager

## **Block 2- Project Initiation**

7. What factors need to be considered while identifying projects? What are the various approaches to project identification?
8. What do you mean by payback period method? What are its advantages and disadvantages?
9. What is market analysis? Describe the various steps involved in it.
10. Brief the stages of feasibility study?
11. What is social cost benefit analysis? Write briefly the steps in UNIDO approach.
12. What are tangible and intangible criteria? What are commensurate and incommensurate units? Why are these important in project selection?

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

13. Explain WBS and WBS Dictionary?
14. What is sensitivity analysis? Explain its history and Uses.
15. Write about need, importance of optimization and history of linear programming?
16. Define EIA with the process of steps and flow chart.

## **Block 4- Network Techniques**

17. Explain the Network Techniques in brief.
18. Explain Network Development with its two types of the network techniques.
19. Briefly describe the Activity on Arrow and Activity on Node Technique?
20. Explain the Procedure for calculating Activity times.

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

21. Discuss briefly Failure Mode and Effects Analysis, Voice of Customer and TQM?
22. Define Risk and briefly discuss the Risk Breakdown Structure.
23. Write the Procedure to Identify risks and diagramming techniques.
24. What is a decision tree analysis? Write its applications.

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

25. What is monitoring? What is the purpose and scope of monitoring?
26. Write briefly about the phases and stages of evaluation?
27. What is Project Control? What are the various aspects of project control?
28. Write about PMIS with its features.