

Unit 1:

1. Explain how DGPS enables site-specific crop management by supporting soil fertility mapping and precision seeding.
2. Describe the role of DGPS-based mapping in predicting crop yields and reducing input wastage in agriculture.
3. How can DGPS contribute to sustainable farming practices by providing high-resolution spatial data?
4. Discuss the significance of multi-GNSS constellations for ensuring uninterrupted navigation in international shipping lanes.
5. Evaluate the importance of redundancy in GNSS constellations for marine route safety during adverse weather.
6. Illustrate how DGPS can be used for real-time flood monitoring and disaster-preparedness planning.
7. Discuss how DGPS-based floodplain mapping supports evacuation route planning in emergency situations.
8. Explain how DGPS enhances risk assessment for dams and reservoirs in flood-prone regions.
9. How does GNSS integration with DGPS improve accuracy in monitoring inland waterways?
10. Evaluate how DGPS-generated high-resolution maps aid policymakers in disaster management strategies.

Unit 2:

1. Illustrate how RTK-DGPS can be applied to track coastal erosion processes with centimeter-level accuracy.
2. Discuss the advantages of using RTK corrections in shoreline monitoring projects.
3. Explain the role of real-time DGPS in supporting coastal zone management and planning.
4. Why is coordinate transformation critical when integrating DGPS survey results into national mapping frameworks?
5. Describe challenges faced in applying DGPS coordinate systems for cross-border industrial projects.
6. Illustrate with an example how coordinate transformation supports large-scale metro or airport expansion surveys.
7. Explain the step-by-step process of setting up a base-rover DGPS pair for real-time construction monitoring.
8. Discuss the role of DGPS error correction techniques in aviation infrastructure projects.
9. Why is datum conversion necessary in multinational industrial pipeline alignment surveys?
10. Evaluate the limitations of DGPS without coordinate transformations in global-scale infrastructure projects.

Unit 3:

1. Discuss the methodology of DGPS planning for detecting underground pipelines in urban smart city projects.
2. Explain how DGPS assists in preparing utility maps for telecommunication and power line networks.
3. Illustrate the role of DGPS surveys in corridor mapping for expressway and railway projects.
4. Provide a step-by-step workflow of DGPS surveying in highway design, from reconnaissance to alignment finalization.
5. How can DGPS data be combined with GIS layers for watershed and forest resource analysis?
6. Discuss the use of DGPS in monitoring biodiversity through GIS-integrated forest cover studies.
7. Evaluate the benefits of integrating DGPS with GIS for urban green cover mapping.
8. Explain how DGPS-based mapping supports environmental impact assessment for infrastructure development.
9. Discuss how CORS-enabled DGPS enhances positional accuracy in long-span bridge construction.
10. Illustrate with an example how DGPS data feeds into GIS for real-time decision-making in land-use planning.