

**2019**

**MA/MSc**

**4<sup>th</sup> Semester Examination**

**GEOGRAPHY**

**PAPER – GEO-404**

**Optional Paper-1**

**Full Marks : 40**

**Time : 2 Hours**

*The figures in the right-hand margin indicate full marks.*

*Candidates are required to give their answers in their  
Own words as far as practicable.*

*Illustrate the answers wherever necessary.*

*(Turn Over)*

**Coastal Ecology & Hazards****Group A**

1. **Answer any one questions :** **1×8=8**
- a) Enumerate different foreign factors for global sea level rise highlighting their relative contributions.
  - b) Elucidate with examples from the recently visited coast for describing the roles of human in modifying coastal forms and processes.

**Group B**

2. **Answer any two questions :** **2×4=8**
- a) Assess roles of artificial sea-weeds in managing coastal erosion.
  - b) Write the physiological and morphologic adaptive strategies of dune building plants.
  - c) Compare between the forms-and-processes of natural estuary and embanked Estuary in Indian Sundarbans.
  - d) Explain how the mangals have adapted to thrive in tidal environment.

**Group C**

3. **Answer any two questions :** **2×2=4**
- a) Define productivity gradient across the dune.
  - b) Why sea level is falling along several coasts?
  - c) Why is PSMSL important in sea level research?
  - d) How do ebb surges generate?

## Coastal Issues and Management

### Group A

1. **Answer any ONE questions :** **1×8=8**
- a) What do you understand by the term 'Coral Bleaching' and analyse the causes that may lead to coral bleaching. **2+6**
- b) Discuss the methods of application of Remote Sensing and GIS techniques in preparation of Geomorphological mapping of the coastal zones.

### Group B

2. **Answer any TWO of the following:** **2x4**
- a) Explain the role of environmental regulation in managing coastal tourism and environment conflicts.
- b) Elucidate the environmental impact of sea walls.
- c) Briefly explain the method of assessment of coastal vulnerability.
- d) Explain the concepts of the Integrated coastal zone Management (ICZM) in India.

### Group C

3. **Answer any TWO questions:** **2x2**
- a) What are the criteria of delineating CRZ-I ?
- b) Give two major causes of mangrove mortality.
- c) What are new dredging techniques is used in estuary management with special reference to Hugli downstream sections.
- d) Why coastal urbanization is highly fragile?

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## Theoretical Bases of Regional Planning

### Group A

1. **Answer any one from the following :** **1×8=8**

- a) Critically discuss the concept of balanced and unbalanced growth and state their significance in the present day content.
- b) Discuss Boudeville's concept of principal cities system and explain Compensatory metropolis.

### Group B

2. **Answer any two from the following :** **2×4=8**

- a) Critically discuss the major planning strategies taken for regional development In our five year plans.
- b) Elucidate the nature of polarizations as posulated by perrouse.
- c) Give a brief account on the regional environmental issues of Paschim Medinipore District.
- d) What is hinter land and how it is synonymous with complementary region?

### Group C

3. **Answer any two from the following :** **2×2=4**

- a) What is meant by prospective industries?
- b) What is top-down approach in our multi level planning?
- c) Differentiate megacity from metropolis.
- d) What are the special features of garden city?

## Planning for Regional Development

### Group-A

1. Answer any **ONE** from the following questions. **1x8**

- a) Elucidate the role of agriculture in regional development and justify the significance of Agro-climatic Regions of India as a scheme for its rapid regional economic development.
- b) Highlight the salient features of development with special reference to poverty alternation.

### Group-B

2. Answer any **TWO** from the following questions. **2x4**

- a) Distinguish between intra-regional and inter-regional planning approaches giving suitable illustration.
- b) State the guidelines of urban development forwarded in the 74<sup>th</sup> Constitutional Amendment document.
- c) 'Agriculture and Industry can together promote regional development in an Integrated Input-Output framework' - Justify with illustrations.
- d) Elaborate the roles of RS and GIS in urban sprawl management.

### Group-C

3. Answer any **TWO** questions: **2x2**

- a) Bring out the criteria that differentiate rural-urban fringe from rural-urban continuum.
- b) State the major urban housing policies of India.
- c) What is Sagarmala project?
- d) What do you mean by real estate development?

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**ADVANCED REMOTE SENSING****Group-A**

1. **Answer any ONE question:** **8x1**
- a) What do you mean by Point operations and local operations in a image processing? Why and how both the methods are significant? Give suitable examples with diagrams.
- b) Illustrate the basic principles of SAR. What are the advantages of microwave remote sensing over optical remote sensing?

**Group-B**

2. **Answer any TWO questions:** **4x2**
- a) How range resolution is different from azimuth resolution of RADAR remote Sensing ?
- b) Why the dominant Wavelength in satellite remote sensing is crucial and how do you determine the dominant wavelength?
- c) What is the Working principle of passive microwave remote sensing? Write down the applications of passive microwave remote sensing.
- d) Why pre processing of a digital satellite image is essential? Explain your answer on the basis of geometric corrections of satellite data.

**Group-C**

3. **Answer any TWO questions:** **2x2**
- a) How many GCPs are needed for 1<sup>st</sup> and 2<sup>nd</sup> order polynomial transformation of an image?
- b) What do you understand by signal- to- noise ratio?
- c) Briefly discuss the major applications of LIDAR data set.
- d) What is emissivity?



## ADVANCED GIS AND APPLICATIONS OF REMOTE SENSING

### Group-A

**Answer any ONE question: 1x8**

- a) Discuss the integration at RS and GIS for land use land cover mapping from the perspective of agricultural planning.
- b) Discuss the measures at spatial autocorrelation in analysing the sMpatial Phenomena.

### Group-B

**1. Answer any TWO questions: 2x4**

- a) Give a brief account of watershed mapping using 3D GIS.
- b) Explain the relevance of spatial data infrastructure in rynch planning process.
- c) Give a structure of Web GIS and state two prospective and constrains of Web-GIS.
- d) What are the components at spatial-data model? Graphically explain it.

### Group-C

**2. Answer any TWO questions: 2x2**

- a) Differentiate between meta data and attribute data.
- b) How has the distance between GPS Satellites and receiver been computed?
- c) What is kappa statistics?
- d) What is a semi-radiogram statistics?