

2017

M.A./M.Sc.

3rd Semester Examination

GEOGRAPHY

PAPER—GEO-303

(Special Paper—Unit 29 & 30)

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.

Write the answers of each Unit in separate books.

Unit-29

Option - 1

(Coastal Management)

Group—A

1. Answer any *one* from the following questions : 1×8
- (a) Compare the processes and landforms in the tide-dominated and ebb-dominated estuary.

(Turn Over)

- (b) Construct beach-stage-model for Old and New Digha and compare them.

Group—B

2. Answer any *two* questions : 2×4
- (a) How does a diurnal tide occur ?
- (b) Explain the formation of rip-cell-in regular coast.
- (c) Discuss te major approaches to classification of coast.
- (d) Explain the different types of wave-induced currents.

Group—C

3. Answer any *two* questions : 2×2
- (a) Define nodal point.
- (b) Define primary coast.
- (c) What are standing waves ?
- (d) In a tidal creek with sandy substrate, how can sediment transport be related to Froude number ?

Unit-29**Option - 2****[Foundation of Urban Geography]****Group—A**

1. Answer any *one* from the following questions : 1×8
- (a) Give a brief account on Wirth's concept of urbanism and state its relevance in the present day context.
 - (b) 'Cities as systems within systems of cities' — Explain this statement as postulated by Brian J. L. Berry. Briefly discuss National Urban systems in the context of global economy

Group—B

2. Answer any *two* questions : 2×4
- (a) Identify the problems of urban sprawl with special reference to Indian metropolitan cities.
 - (b) Mention the role of urban ecology in maintaining biodiversity of an urban area.
 - (c) What are the implications of development of "Ghettos" Urban areas.

- (d) Explain the process of urban agglomeration with special reference to Asansol-Durgapur region.

Group—C

3. Answer any *two* questions : 2×2
- (a) Mention 2 important characteristics of "Gated communities" ?
- (b) Define new towns.
- (c) State the basic propositions on Urban Planning by Corbusier.
- (d) Mention the characteristics of peri urban zone.

Unit-29

Option - 3

(Physical Basis of Remote Sensing)

Group—A

1. Answer any *one* from the following questions. 1×8
- (a) What is Electromagnetic Radiation? How do you explain the radiation from an object using the wave and particle theories.
- (b) Explain the concept of Blackbody radiation. What are the factors that control the thermal remote sensing at the land surface ?

Group—B

2. Answer any *two* questions : 2×4
- (a) How do you derive the Kepler's law of $T^2 \propto r^3$ for orbiting satellite around the Earth?
 - (b) Explain the concept of path radiance. Why is it so important in optical remote sensing?
 - (c) What are the fundamental differences among scattering, reflection and refraction?
 - (d) What is 'Atmospheric window'? Why is it too important in environmental remote sensing?

Group—C

3. Answer any *two* questions : 2×2
- (a) What is orbital velocity of a satellite?
 - (b) State the difference between radiant and kinetic temperature of an object.
 - (c) Why passive remote sensing satellites are called semi-synchronous?
 - (d) State the fundamental difference between multispectral and hyperspectral image.

Unit-30

(Costal Environments : Focus on Indian Regions)

Group—A

1. Answer any *one* question : 1×8
- (a) Describe the role of estuarine morphology and morophodynamics in the evolution of tide dominated coastal environment with special reference to the Sundarban.
- (b) Explain the origin and morphological development of carbonate platforms and beachrocks along the coral fringe islands of South Andaman.

Group—B

2. Answer any *two* questions : 2×4
- (a) Explain the technique for assessing coastal vulnerability index following the method of USGS.
- (b) Which are the major agents of bio tidal accretion ?
- (c) Highlight the land reclamations and associated problems of Sundarban coastal tract.

- (d) Discuss morphodynamic behavior of coastal systems with feedback mechanisms.

Group—C

3. Answer any *two* questions : 2×2
- (a) Define the item CH₂.
- (b) Define barrier coast.
- (c) What is Hazard zonation along the coasts?
- (d) What is the significance of the shore face?

Unit-30

(Contemporary Urban Issues)

Group—A

1. Answer any *one* question : 1×8
- (a) Discuss the growth and development of metropolitan cities in India, after independence.

- (b) Elucidate upon the intensity of the pollution problems in urban areas of developing countries.

Group—B

2. Answer any *two* questions : 2×4
- (a) Discuss the impact of deindustrialisation upon new urban economic systems.
- (b) Bring out the differences between urban and rural social stratification.
- (c) Briefly discuss the major contemporary homellessness in urban India.
- (d) Distinguish between surface and atmospheric urban heat islands.

Describe the types and characteristics of urban heat islands (UHI).

Group—C

3. Answer any *two* questions : 2×2
- (a) What do you mean by urban liveability index ?

- (b) Distinguish between basic and non-basic economic functions in urban area.
- (c) Identify the causes of urban flood ?
- (d) What do you mean by 'ecological foot print' in the urban context ?

Unit-30

RS & GIS

Aerial

(Photogrammetry and Aerial Photo and Satellite System)

Group—A

1. Answer any one question : 1×8

- (a) Write a brief note on different methods to calculate height of object from aerial photograph with suitable diagrams.
- (b) What are the different properties of photographic film that impact on the multiple resolution of serial photograph and how to measure those properties.

Group—B

2. Answer any *two* questions : 2×4
- (a) Differentiate between whiskbroom and pushbroom satellite system with proper illustration.
 - (b) Compare the relative advantages and disadvantages of fine resolution and coarse resolution satellite system.
 - (c) Briefly mention what are the different geometric errors produced due to unwanted movement of the aircraft, with suitable diagrams.
 - (d) What are the different conditions for stereo vision? Write down the working principle of mirror stereoscope with suitable diagrams.

Group—C

3. Answer any *two* questions : 2×2
- (a) What is dichroic grating?
 - (b) Write down the significance of Characteristics curve.
 - (c) What do you mean by Photo base?
 - (d) Write a short note on Ortho rectification.
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