Total number of printed pages–19

14 (GGY–3) 3156

2021

(Held in 2022)

GEOGRAPHY

(Optional)

Paper : GGY–3156

Full Marks : 80

Time : Three hours

The figures in the margin indicate full marks for the questions.

(Population Geography)

Group–A

Marks : 48

*Answer **any three** of the following questions :* 16×3=48

1. Discuss the views of Malthus and Ricardo regarding population growth and its associated issues. 16

Contd.

2. With reference to population-resource relationship, explain the concept of over-population, underpopulation and optimum population with examples. 16

3. Discuss the contemporary population policies and programmes of Japan and China, and their impacts. 12+4=16

4. Mention the push and pull factors of international migration. Highlight the consequences of such migration with necessary illustrations. 8+8=16

5. Make a critical appraisal of laws of migration as proposed by Ravenstein and Lee. 16

Group–B

Marks : 32

*Answer **any four** of the following questions :* 8×4=32

6. Discuss how population geography emerged as a systematic branch of geography. 8

7. With necessary illustrations, explain various techniques of population projection. 8

8. With necessary data, discuss the spatial variation in the pattern of population growth in the world. 8

9. What are vital rates ? How do these influence population growth in both developed and developing countries ? 8

10. What is population-resource region ? Divide the world into population-resource regions and compare the salient characteristics between the USA-type and European-type. 2+(2+4)=8

11. With necessary illustrations, discuss the implications of changing age-sex composition of population. 8

(Fluvial Geomorphology)

Group–A

Marks : 40

Answer Question No. **1** *and* ***any three*** *from the rest :* 16+8×3=40

1. Analyse the functioning of fluvial system in a river basin in the context of its inlet-outlet components and matter and energy flow. 16

Or

Explain how a river attains grade and state the criteria for graded condition. 8+8=16

2. State the utility of hydrographs in studying the spatio-temporal behaviour of river flow. 4+4=8

3. Discuss how applications of remote sensing and GIS have enhanced the scope for studying fluvial geomorphology. 8

4. While mentioning the importance of sedimentological studies, discuss the grain-size analysis techniques for alluvial sediments. 2+6=8

5. Write short notes on ***any two*** of the following : 4×2=8

(a) Relevance of fluvio-geomorphic study in recent times

(b) Relation between fluvial geomorphology and hydrology

(c) Basin runoff estimation technique

Group–B

Marks : 40

Answer Question No. **6** *and* ***any three*** *from the rest :* 16+8×3=40

6. Explain the mechanics and causes of braiding with examples from the Brahmaputra river of Assam. 8+8=16

Or

Explain the processes how channel morphology, with reference to bed and banks, develop in an alluvial river. 16

7. Analyse the factors causing channel changes on spatio-temporal scales. 4+4=8

8. Describe how the characteristic morphological features develop on a floodplain with reference to level formation. 8

9. What is plane geometry of channels? Explain the geometry of meandering channel with a neat diagram. 2+6=8

10. Write short notes on ***any two*** of the following : 4×2=8

(a) Mechanics of bank erosion

(b) Three-dimensional channel changes

(c) Aggrading channel and associated processes

(Social Geography)

(Theoretical and Methodological Framework of Social Geography)

Unit–I

Marks : 48

*Answer **any three** questions.*

1. Define the field of social geography and discuss the trend of development of the discipline in the Anglo-American countries and India. 6+10=16

2. What do you understand by 'social space'? Discuss various types of space and their significance in understanding social geography of an area. 4+12=16

3. What do you mean by 'social group'? Briefly discuss the significance of social group approach in social geography along with various types of group with necessary examples. 4+6+6=16

4. What do you understand by language and dialect? Discuss the linguistic regions of the world with a neat diagram. 3+10+3=16

5. What do you understand by 'social structure'? Explain, with appropriate examples, the salient character of social structure. 6+10=16

Unit–II

Marks : 32

*Answer **any four** questions.*

6. Define social well-being and explain its importance as reflected in various indicators of development. 2+6=8

7. What is a race? Explain, with examples, the physical traits and distribution of Mongoloid social group. 2+6=8

8. What do you understand by caste system? What are different types of caste? How does caste system affect India today? 2+3+3=8

9. Distinguish between social pattern and social process and analyse the pattern-process relationship citing examples from North-East India. 4+4=8

10. What are material and non-material cultures? Explain with appropriate examples. 8

11. Write short notes on : ***(any two)*** 4×2=8

(a) Social diversity and plurality

(b) Evolution of societies

(c) Social stratification

(Geoinformatics)

Unit–I

(Remote Sensing)

Marks : 32

Answer Question No. **1** *and* ***any two*** *from the rest :* 16+8×2=32

1. What is meant by remote sensing? What is the role of energy in remote sensing and how does it react with different features on the earth surface? 4+12=16

Or

Discuss any remote sensing data product from NASA, ISRO or ESA and describe its coverage, data characteristics and the applications for which it has been used. 16

2. Explain the main principles related to satellite remote sensing. 8

3. Discuss the concepts of scale and ground coverage, tilt and relief displacement in relation to aerial photographs. 8

4. What is an electromagnetic spectrum and how is it important in remote sensing? 8

Unit–II

(Geographic Information System)

Marks : 32

Answer Question No. **5** *and* ***any two*** *from the rest :* 16+8×2=32

5. What is a GIS ? What are the commonly used methods in GIS based analyses ? 4+12=16

6. Answer briefly on ***any two*** of the following : 4×2=8

   (i) What is attribute data ? Does it facilitate carrying out any specific function(s) ?

   (ii) What are the differences between data input and data output/analysis in a GIS ?

   (iii) Does raster to vector/vector to raster conversion have any benefits ?

7. What does integration of remote sensing data and GIS mean and what is its usefulness ? 8

8. Write short notes on ***any two*** of the following : 4×2=8

   (i) Querying

(ii) Database

(iii) GIS data models

Unit–III

(Global Positioning System)

Marks : 16

*Answer **any two** of the following questions :*

9. Discuss the applications of drones and microsatellites in environmental conservation and urban analyses. 8

10. GPS is an indispensible tool for a wide variety of applications. Provide examples to explain this statement. 8

11. The use of a GPS entails various errors that a DGPS overcomes. What are the advantages and disadvantages of the two devices ? 8

(Geography of Rural Development)

Group–A

Marks : 48

*Answer **any three** questions.*

1. Explain the concept of rural development and discuss its significance. 10+6=16

2. Distinguish the rural characteristics between the developed and developing countries. 16

3. Trace the evolution of rural settlement and write shortly on its size and spacing. 10+6=16

4. Write short explanatory notes on ***any two*** of the following : 8×2=16

   (a) Rural-urban relation

   (b) Fishing as a component of rural development

   (c) Diffusion of development

   (d) Rural towns

Group – B

Marks : 32

*Answer **any four** questions.*

5. Write a note on rural spatial organization. 8

6. Discuss the problem of inequality and state how it stands in the way of rural development. 5+3=8

7. What is sustainable development ? Discuss its relevance in rural development planning. 2+6=8

8. Discuss the salient features of central place theory and state its applicability in rural development. 4+4=8

9. Give an outline of the environmental problems generally encountered in the rural areas of India. 8

10. Write short notes on ***any two*** of the following : 4×2=8

    (a) Role of industrialization in rural development

    (b) Trade and rural development

    (c) Social problems of rural development in India

(Cartography)

Group–A

Marks : 48

*Answer **any three** of the following questions :* 16×3=48

1. Define the field of cartography and discuss its history of development. 6+10=16

2. What are spherical triangle and spherical excess? Derive the cosine formula of a spherical triangle and compute the great circle distance between *A* (16°30′ N, 31°45′W) and *B* (41°15′N, 108°30′E) on the globe. 2+(8+6)=16

3. What is traverse surveying? Explain the principles and procedure of conducting closed traverse surveying with prismatic compass. 2+14=6

4. Mention the elements and characteristics of maps and discuss why map is considered as a powerful tool for spatial analysis. 4+12=16

5. Carry out necessary calculations for constructing the graticule of the homolosine projection with scale 1 : 150,000,000 and interval 10°. Mention its basic prospects, uses and limitations. 12+4=16

Group–B

Marks : 32

*Answer **any four** of the following questions :* 8×4=32

6. What is digital cartography? Mention its advantages over analogue cartography. 2+6=8

7. What is Gauss's conformal projection? Derive its formula for constant of the cone. 2+6=8

8. Present a general classification of maps and briefly discuss about the map series of India. 5+3=8

9. Derive the formula to find out the height of a tower which is located at an inaccessible situation. For this purpose two vertical angles from the top of the tower are measured by a theodolite placed at two stations separated by a known horizontal distance. 8

10. Compute distance between two points A (24°N, 5°W) and B (57°N, 63°E) on the Mercator projection with scale 1 : 100,000,000. 8

11. Write short notes on the following : 4+4=8

(a) International projection

(b) Napier's five-parts circle

(Regional Development and Planning)

Group–A

Marks : 48

*Answer **any three** questions.*

1. Discuss the meaning of regional development and state its relevance in the contemporary context. 8+8=16

2. Discuss the concept of region and explain its significance as a core concept of the subject Geography. 8+8=16

3. Define the growth pole theory and discuss its significance in planning for regional development. 10+6=16

4. What is meant by resource management? Explain its role in planning for regional development. 6+10=16

Group–B

Marks : 32

*Answer **any four** questions.*

5. What is a functional region ? State how it is identified. 3+5=8

6. Critically examine the relevance of multi-level planning in a country like India. 8

7. Discuss the salient features of central place theory and examine its applicability in regional planning. 5+3=8

8. What is meant by problem region ? Discuss how a problem region can be identified. 4+4=8

9. Write briefly on the concept of town and country planning and its significance in the present-day context. 4+4=8

10. Write short notes on ***any two*** of the following : 4×2=8

    (a) Resource region

    (b) Decentralization of planning

    (c) Functional approach to regional planning