Total number of printed pages–16

14 (SEM–3) GGY 3156

2024

GEOGRAPHY

Paper : GGY–3156

Full Marks : 80

Time : Three hours

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

(Geoinformatics)

UNIT–1

(Remote Sensing)

Answer Q. No. **1** *and* ***any two*** *questions from the rest.*

1. Provide a definition of remote sensing. What are the underlying principles and its field of study ? 16

Or

What are the fundamental principles of aerial photography ? Examine their geometric characteristics.

Contd.

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

   (i) Satellite data products from India or USA

   (ii) UTM zones

   (iii) Energy interactions in the atmosphere

3. What are the main types of resolution in remote sensing ? Examine *any three* of them using suitable examples. 8

4. What do the terms geoid, ellipsoid, spheroid and datum mean ? How are they related ? 8

UNIT–II

(Geographic Information Systems)

Answer Q. No. **5** *and* ***any two*** *questions from the rest.*

5. Does using a GIS in combination with remote sensing data serve any purpose ? Provide examples to support your answer. 16

Or

What is a GIS ? Examine the trend of its development in recent decades.

6. Is a GIS database dynamic and why is its creation time consuming ? What functions can you perform with it ? 8

7. What does raster to vector (and vice versa) conversion mean and why is it useful ? 8

8. What are GIS data models ? What are their differences and advantages if any. 8

UNIT–III

(Global Positioning System)

*Answer **any two** questions :*

9. What real world GPS applications are possible ? For urban or infrastructure planning or disaster management how can it be used ? 8

10. Examine the navigation principles behind a GPS and explain the different segments in a GPS. 8

11. How can drones/UAVs/ microsatellites be used in urban planning or environmental conservation or climate change studies. 8

(Geography of Rural Development)

GROUP–A

(Marks : 48)

*Answer **any three** of the following :*

1. Discuss the concept of rural development and the scope of its application in present context. 8+8=16

2. Discuss the problems and prospects of rural development in India. 8+8=16

3. What is meant by inequality ? Is it possible to reduce the degree of inequality through sustainable rural development programmes ? 4+12=16

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

   (a) Rural-Urban interaction

   (b) Rural towns

   (c) Rural landscape

   (d) Social constraints of development

GROUP–B

(Marks : 32)

*Answer **any four** of the following :*

5. Briefly discuss the socio-economic characteristics of the rural areas of the less developed countries. 8

6. Discuss the major features of rural settlements with reference to their size and spacing. 8.

7. Give the meaning of sustainable development and discuss its relevance in rural development. 2+6=8

8. Discuss the role of industries in uplifting the socio-economic condition of the rural areas. 8

9. Discuss the principle of the central place theory and examine their applicability in the present rural context. 4+4=8

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

    (a) Rural spatial organization

    (b) Role of agriculture in rural development

    (c) Urban influence on the rural areas

    (d) Rural periodic markets

Social Geography

(OPTIONAL)

(Theoretical and Methodological Framework of Social Geography)

UNIT–I

(Marks : 48)

*Answer **any three** questions :*

1. Define the field of social geography and highlight its significance in present day context. 4+12=16

2. What do you mean by religion? Discuss briefly to distribution and characteristics of different religions of the world with appropriate examples. 4+12=16

3. What do you understand by language and dialect? Discuss the linguistic regions of the world with a neat diagram. 4+4+8=16

4. What do you mean by 'social group' and 'social structure'? Briefly discuss the salient characteristics of group life along with the various types. 4+4+5+3=16

5. Define social space and discuss the various types of space used in social geography with appropriate example. 6+10=16

UNIT–II

(Marks : 32)

*Answer **any four** questions :*

6. What do you understand by social plurality and social diversity ? Give appropriate example to substantiate your answer. 4+4=8

7. Trace the development of social geography in India and Anglo-American countries. 4+4=8

8. What do you understand by 'social well-being' ? Briefly discuss social well-being as reflected in various socio-economic indicators. 3+5=8

9. Critically discuss the spatial interaction model with appropriate. 8

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

11. Write short notes on ***any two*** of the following : 4×2=8
    (a) Social stratification
    (b) Material and non-material culture
    (c) Models used in social geography

(Regional Development and Planning)

GROUP–A

(Marks : 48)

*Answer **any three** of the following :*

1. Define the concept of regional development and explain how it can contribute towards balanced development of a nation. 8+8=16

2. What is a formal region ? Discuss how a formal region can be identified. 6+10=16

3. Give an outline of the Core-Periphery Theory and explain its relevance in planning for regional development. 10+6=16

4. Discuss in detail *any one* of the approaches to the study of regional development. 16

GROUP–B

(Marks : 32)

*Answer **any four** of the following :*

5. Define the term 'regionalization' and present *any one* method adopted for regionalization. 2+6=8

6. What is meant by decentralization of planning ? Discuss its role in balanced regional development. 2+6=8

7. What is a problem region ? Explain the purpose of identification by problem region. 2+6=8

8. Examine the advantage of multi-level planning for development in the context of India. 8

9. Define the concept of resource and discuss how sustainable management of resources can help the process of regional development. 2+6=8

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

    (a) Growth Pole Theory

    (b) Town and Country Planning

    (c) Central Place Theory

    (d) Functional region

(OPTIONAL)

(Cartography)

GROUP–A

(Marks : 48)

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

1. Define the field of cartogrphy and discuss its recent trends. 4+12=16

2. What do you mean by spherical triangle and spherical excess ? With the help of necessary diagrams derive the sine formula of a spherical triangle ABC. 4+12=16

3. What is Homolosine Projection ? Explain the principles of its construction along with derivation of necessary formulae. 2+14=16

4. Distinguish between plane surveying and geodetic surveying. Explain the principles and procedure of measuring angle, distance and height with the help of theodolite. 4+12=16

5. What is plane tasting ? Discuss its principles and procedure with respect to radiation and intersection methods. 2+14=16

GROUP–B

(Marks : 32)

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

6. Using the cosine formula of a spherical triangle ABC, find out the distance and direction between A (20°N, 85°W) and B (47°N, 20°E) on the earth by considering 6,370*km* as its radius.

7. Compute the percentage of error in area between 25°N and 52°N parallels of latitude in Mercator's projection as compared to the globe by considering 1 unit as the radius.

8. What is a map ? Distinguish between map series of India and International map series. 2+6=8

9. Find out the height of an inaccessibly located tower, which makes vertical angle of 43° and 30° at two different ground stations separated by a distance of 60 meter. Solve the problem with the help of a diagram by using trigonometry.

10. Discuss the principles and methods of levelling and controlling with the help of a dumpy level.

11. Write short explanatory notes on the following : 4×2=8

(a) Shape and size of the earth

(b) Base map preparation

(Fluvial Geomorphology)

GROUP–A

(Marks : 40)

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

1. Elaborating all aspects and characteristics of a drainage basin, establish that drainage basin represents the true from of a physical system. 16

Or

Explain the rainfall-runoff relationship and describe *any two* methods of runoff estimation in a basin. 4+6+6=16

2. Describe the sedimentological technique useful for fluvio-geomorphological studies.

3. Explain the role of remote sensing technique in fluvo-geomorphic studies with suitable examples.

4. Bring out the critical and integral relationship between fluvial geomorphology and hydrology.

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

   (a) Criteria for river at grade
   (b) Hydrograph construction and analysis
   (c) Drainage basin as a fundamental geomorphic unit

GROUP–B

(Marks : 40)

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

6. Explain the mechanism associated with the development of straight, meandering and braided channel patterns. 4+6+6=16

Or

Explain with diagrams and suitable examples the spatio-temporal changes in channel types and morphology. 8+8=16

7. State the causes and processes involved in river bank erosion with examples.

8. Taking examples from the lower Brahmaputra channel reach, examine the bankline migration processes with examples.

9. Describe the various fluvial processes associated with floodplain formation.

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

    (a) Plan geometry of channels

    (b) Dimensions of channel changes

    (c) Fluvial processes involved in levee formation

(OPTIONAL)

(Population Geography)

GROUP–A

(Marks : 48)

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

1. Define the field of population geography in relation to demography and discuss its approaches of study. 4+12=16

2. Present the trend of population growth in the world since the beginning of nineteenth century and discuss the causes and consequences of its spatial variation in different parts of the world. 6+10=16

3. What is migration ? What are its different types ? Discuss the laws of migration as proposed by Ravenstein and Lee. 2+4+10=16

4. Make a comparative assessment of demographic and socio-economic characteristics of population between the developed and less developed countries.

5. Compare the views of Malthus, Ricardo and Marx with respect to population growth in the would and its different parts.

GROUP–B

(Marks : 32)

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

6. Throw light on the sources of population data and their problems of comparability and mapping. 8

7. What is meant by population-resource relationship ? In this context divide the world into population-resource regions and mention their distinguishing demographic characteristics. 2+6=8

8. Highlight the distinguish demographic characteristics of population between the developed and less developed countries of the world. 8

9. Present the demographic transition model and critically discuss the significance. 4+4=8

10. Discuss the contemporary population policies of Japan and China. 8

11. Write short explanatory notes on the following : 4×2=8

    (a) Population explosion

    (b) Stouffer's theory of population migration
