PG/IIIS/GEO/303(A1,A2/B1, B2/C1,C2/D1,D2)/22

M.A./M.Sc. 3rd Semester Examination, 2022

GEOGRAPHY

PAPER – GEO-303(A1,A2/B1,B2/C1,C2/D1,D2)

Full Marks : 40

Time : 2 hours

The figures in the right hand margin indicate marks

Candidates are required to give their answers in their own words as far as practicable

PAPER—GEO-303A.1

(*Process Geomorphology*-I)

[*Marks* : 20]

GROUP – A

Answer any one question : 8×1

1. Elucidate the idea of geomorphic threshold and explain, with examples, how process-form relationships are thresholded.

2. Assess the role of deep weathering in the development of distinctive landforms of the humid tropics with reference to lateritic duricrust.

GROUP – B

Answer any **two** questions : 4×2

3. Explain the mechanism of drainage network development after Horton.

4. What are the conditions for badland development ?

5. How does a straight channel transfer into a meandering channel ?

6. Examine the process of floodplain development by in-channel as well as overbank deposits.

GROUP – C

Answer any **two** questions : 2×2

7. Define belt of no erosion.

8. What is boundary resistance ?

9. Why entrainment velocity for sand is less than clay or silt ?

10. What do you mean by Braided Index ?

PAPER—GEO-303A.2

(*Special Paper* : *Process Geomorphology*-II)

[*Marks* : 20]

GROUP – A

Answer any **one** question from the following : 8×1

11. Discuss the role of man as active geomorphic agent in modification of natural forms and processes of the floodplains and deltaplains of the Ganga basin.

12. Explain the processes involved in the long term evolution of landform with reference to development of planation surfaces.

GROUP – B

Answer any **two** questions from the following : 4×2

13. Make an outline of the peri-glacial processes in shaping the landform of high altitude and high latitude area.

14. Compare between supraglacial and sub-glacial drift.

15. Write a short note on Eustatic change.

16. Mention the need for the conservation of Geomorphosites.

GROUP – C

Answer any **two** questions from the following : 2×2

17. Define Anthropocene.

18. What is a Pingo ?

19. What is 'Land Reclamation' ?

20. Define Etchplanation.

PAPER—GEO-303B.1

(*Coastal Processes*)

[*Marks* : 20]

GROUP – A

Answer any **one** question : 8×1

1. Elucidate the nature of modification of wave while approaching towards coast.

2. Explain the mechanism of rip cell formation on regular coast.

GROUP – B

Answer any **two** questions : 4×2

3. Examine the importance of coastal study.

4. Explain the process-form relationship in the coast through system approach.

5. Analyse the mechanism of wave refraction.

6. How does long-shore current develop along the coast ?

GROUP – C

Answer any **two** questions : 2×2

7. Define wave attenuation.

8. Define coast.

9. What is secondary coast ?

10. Define amphidromic point.

PAPER–GEO-303B.2

(*Coastal Environments*: *Focus on Indian Regions*)

[*Marks* : 20]

GROUP – A

Answer any **one** question from the following : 8×1

11. Describe the morphology of Hugli estuary and

identify the role of tides in the morphodynamics of this estuary.

12. Explain the geomorphic significance of carbonate shore platforms fringing the Andaman islands in India.

GROUP – B

Answer any **two** questions from the following : 4×2

13. Explain the techniques in assessing hazards and vulnerabilities of the coastal regions.

14. Identify the reasons of coastal erosion in West Bengal.

15. What is the role of sandy beaches and barrier coasts in tourism recreational activities ?

16. Discuss briefly the morphodynamic behaviour of coastal systems with feedback mechanisms.

GROUP – C

Answer any **two** questions from the following : 2×2

17. What is the significance of scale in coastal geomorphology ?

18. What is 'beachrock' ?

19. Define 'wave dominated coast'.

20. Why embankment is constructed in the Sundarban ?

PAPER—GEO-303C.1

(*Urban Geography and Regional Planning*)

[*Marks* : 20]

GROUP – A

Answer any **one** question from the following : 8×1

1. Give a brief account of the trends of urbanization in India since independence.

2. Justify the National Urban System as an open system and describe how its degree of exposure to the global economy affects its function.

GROUP – B

Answer any **two** questions from the following : 4×2

3. What function does new-town planning serve in promoting a country's sustainable urban development ?

4. Explain the Garden City principle in urban planning.

5. Elucidate the theory of urban ecology.

6. Describe in brief the environmental impact of suburban sprawl in the developing countries.

GROUP – C

Answer any **two** questions from the following : 2×2

7. What is a compact city ?

8. What do you mean by 'urban outgrowths' ?

9. Mention the process of gentrification in an urban area.

10. What are the characteristics of new towns ?

PAPER—GEO-303C.2

(*Contemporary Urban Issues*)

[*Marks* : 20]

GROUP – A

Answer any **one** question from the following : 8×1

11. Highlight the major objectives and framework of the smart city project in India.

12. Briefly discuss the spatio-temporal characters of metropolitan cities in India specially after Independence.

GROUP – B

Answer any **two** questions from the following : 4×2

13. What do you mean by urban ecological footprint ?

14. Elucidate briefly the factors for the formation of urban heat island.

15. Critically assess the argument- "Poverty is the source of poverty".

16. What are the major changes of framework of AMRUT from JNNURM ?

GROUP – C

Answer any **two** questions from the following : 2×2

17. What does 'Social Ranking' mean ?

18. Distinguish between basic and non-basic economic functions in urban areas.

19. What do you mean by bio-methanation process ?

20. What is urban renewal ?

PAPER–GEO-303D.1

(*Physical Basis of Remote Sensing*)

[*Marks* : 20]

GROUP – A

Answer any **one** question from the following : 8×1

1. Write a note on relationship between Kinetic and Radiant temperatures and describe factors affecting these temperatures.

2. Illustrate the fundamental physics behind the dual nature of light.

GROUP – B

Answer any **two** questions from the following : 4×2

3. What is emmissivity ? Give a proof of

$$T_{rad} = \varepsilon^{1/4} T_{kin}.$$

4. State and illustrate Kepler's laws of planetary motion.

5. Describe the interaction of light with atmosphere.

6. Write a brief note on the application of multispectral remote sensing in vegetation study.

GROUP – C

Answer any **two** questions from the following : 2×2

7. Define Escape Velocity.

8. How do you identify cold and warm water mixing ?

9. Estimate the frequency and wavelength of a radiation equivalent to a temperature of 900K.

10. What causes the specular reflection from a surface ?

PAPER–GEO-303D.2

(*Photogrammetry, Aerial Photo and Satellite System*)

[*Marks* : 20]

GROUP – A

Answer any **one** question from the following : 8×1

11. How the photographic film properties define the film resolutions ? Give suitable examples.

12. Explain the geometry of aerial photograph with suitable illustration. What is the importance of photographic overlap ? 6 + 2

GROUP – B

Answer any **two** questions from the following : 4 × 2

13. Describe the additive and subtractive color theories for color photography ?

14. Write down the significance of relief displacement, irrespective of the fact that it is an inherent error of aerial photographs.

15. What are the pre-conditions for stereoscopic modelling ?

16. How aerial photographs can help geographers to understand the earth surface processes ?

GROUP – C

Answer any **two** questions from the following : 2 × 2

17. What is orthorectification ?

18. What do you mean by f-stop ?

19. What is the function of dichroic grating ?

20. Write a short note on the absolute parallax.