MODEL QUESTIONS

SEMESTER- I

DEPARTMENT OF GEOGRAPHY

HIRALAL MAZUMDAR MEMORIAL COLLEGE FOR WOMEN

DAKSHINESWAR, KOLKATA- 700 035

GEOACORO1T :Geotectonics and Geomorphology

10 Mark question [within 600 words]

1. Explain the relation between seismic wave path and the interior structure of the earth.

2. Divide the earth into various layers stating the basis of its division and explaining its characteristics.

3. Classify earth movement. Explain the resultant landforms of different earth movement.

Compare the concept of Isostasy as put forward by Airy and Pratt.

4. piscuss the concept of Isostasy and its geophysical interpretations.

5. Explain Isostasy in terms of phase change. How does unloading and loading of continental mass respond to phase changes?

6. Explain crustal evolution by Plate Tectonic Theory.

7. Explain different types of mechanical weathering with associated landform development

8. Analyse landforms developed by aeolian deposition.

9. Analyse landforms developed by Aeolian erosion.

10. What is mass wasting? What are its effects?

11. What are the landforms associated with rapid mass wasting? Analyse their different consequences.

12. What is Rejuvenation? Mention their causes.

13. Describe the influence of igneous rocks on landform and explain the causes of such manifestations.

14. Assess the importance of sedimentary rocks in construction/ reviewing of Geological Time Scale.

15. Discuss the major processes of disintegration. What are the major processes of degradation?

16. Describe the rapid types of mass wasting. Mention the landforms produced by mechanical weathering.

17. Trace the development of drainage network and landforms on uniclinal structure under first cycle of erosion. What is stream piracy?

18. Discuss the development of drainage system and land forms on folded structure under first cycle of erosion. Relate geological structure and topography.

19. State the characteristics of karst topography.

20. Distinguish between soil creep and solifluction.

21. Distinguish between root tension and chelation.

2 Mark question [within 50 words]

1. What is a destructive margin?

2. Distinguish fan fold and box folds

3. How are tors formed

4. Describe the characteristics of a Barchans.

5. Where do we find nappe?

6. What are geos and gloups?

7. Define rotational fault.

8. How blue schist metamorphic rocks formed in convergent plate boundary?

9 Define suture zone.

10. What is rock wastage?

11. What is ponor?

12. What is structural geomorphology?

13. What is attrition?

14. What is spit?

15. What is differential erosion?

16. What is the significance of varied lithology?

17. What is law of unequal slope?

18. What is outwash plain?

GEOACORO2T Cartographic Techniques

10 Mark question Iwithin 600 words

1 What is the process of the coding system in open series topographical map of Survey of india? Explain the scheme with suitable sketches.

2 Briefly discuss the reference scheme of old series cf Surje of India topographical maps with the help of suitabie sketches.

3. What type of physical and cultural information do you gather from a topographical map?

4. What are the different types of maps and their uses? Distinguish between large scale map and small scale map

5. Provide specific examples of how colour can be used improve the effectiveness of maps. Explain why choropleth maps are inherently misleading?

6. Define map. Classify different types of map and discuss their features in brief.

7. Discuss briefly about the different information on the margins of topographical maps mentioning their significance Explain the characteristics of the Survey of India topographic map with special reference to its extension and Scale.

9. Classify maps according to different parameters and expia the types with suítable examples.

10. Define map scale. Compare the merits and demerits of different methods of representing map scale.

11. Compare the reference scheme of old and open series topographical maps of Survey of India highlighting specific advantages and disadvantages of both.

12. What are the different elements of a map? Discuss elaborately the history of evolution of map making technique around the world.

13. Define thematic map. Classify it and describe each type with examples.

14. Describe the construction of linear/ diagonal/ Vernier scale and mention the use and advantages.

15. Elaborate the concept of scales and discuss the application of different types of scales in geography.

16. Define map and discuss salient characteristics of various types of maps.

17. Define topographical map. Elucidate different objectives and uses of topographical map in Geography.

18. Specify different series of too pographical maps. Explain how the reference number system develops.

19. Identify those conventional signs and symbols used for depicting landforms of a given topographical map with suitable sketches.

20. Critically explain how different Morphometric techniques help in understanding the Geomorphological study of a plateau region.

21. How do you classify maps taking the scale as the criterion?

22. What are four types of information that can be distorted by map projections? Discuss the basic elements of a map. (3+7)

23. Explain the basics of Universal Transverse Mercator projection and its grid system.

24. Classify map projection on the basis of their properties and explain how each property is being maintained in projections.

25. Make a comparative analysis between Perspective and Nonperspective projection. Critically evaluate the uses of Cylindrical Equal Area Projection. (7+3)

26. Derive the location of a point by geographical and Cartesian coordinates.

27. Describe UTM grid system. Explain limitatlons and advantages of UTM projection.

28. Properties and uses of Polar Zenithal stereographic, simple conic, Bonne's, cylindrical and Mercator's projection.

29. What is polar axis? Explain the uniqueness of polar coordinates. Discuss whether the rectangular form is the same as Cartesian.

30. What is generating globe? Explain different methods of calculating the radius of generating globe.

31. Describe the angular and linear systems of a grid.

32. Derive the equation for calculating the radius of the standard parallels of simple conical projection with two standard parallels.

33. Describe the principle, properties, use and disadvantages of Zenithal Stereographic/ Simple Conic with two standard parallels/ Bonne's / Mercator's/ Cylindrical Equal Area projection

34. Classify map projection based on different criteria.

35. What is UTM projection? How do you use his projection in making Indian topographical sheets?

36. Elucidate the objectives and prospects of cartography as a branch of applied geography.

5 Marks Questions /within 150 words

1. What do you mean by Everest datum?

2. What is WGS 84 datum?

3. What is the difference between the coordinate system of

the old series topographical map and open series

topographical map?

4. What are the modifications of open series topographical maps published by Survey of India?

5. If the measured distance from x to y on a Map A' with a scale 1:10,000 is 10 cm, then what would be the scale of Map 'B, if the distance between x and y on that map is 2 cm?

6 6. You are advised to draw a map of distribution of forest in India. What kind of projection you want to include on your map and why?

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The contour interval on a topographic map is 10 m. There are 152 contour lines between your base camp and a mountain peak 1 km away. Find out the slope of the mountain.

8. Large scale maps have smaller values of denominator in R.F and vice versa. - Explain

9. Discuss the numbering system of Open Series map published by Survey of India.

10. 1llustrate the features of Open Series map.

11. Discuss the scale and numbering system of different Old Series map of India and adjoining countries.

12. Explain with illustration that least count of diagonal scale

follows "similar triangle principle".

13. State the advantages and disadvantages of different types of map scale.

14. Explain how the value of RF is closely related with accuracy of spatial objects?

15. What is meant by representative section? Why is it drawn and how its location on the map is justified?

16. Explain the term along with its importance and use: Superimposed Profile, Projected Profile and Composite Profile.

17. State the concept of Ellipsoid and Oblate Spheroid.

18. What are the characteristics of Grid?

19. Write a short note on National Map Policy, 2005.

20. Distinguish between Defence Series Maps (DSMs) and Open Series Maps (OSMs).

21. Distinguish between geographical and Cartesian Co-ordinate system

22. What is a Vernier? What are its types and uses in different instruments?

23. Classify map on the basis of Scale.

24. What is meant by reduction and enlargement of maps?

25. Differentiate between radial scale factor and tangential scale factor.

26. Differentiate between true meridian and magnetic meridian.

27. How is coordinate system related to angular measurement of gridding?

28. What is the relationship between Grid North and True North? [11

29. What is the relationship between primary, secondary and tertiary divisions of a diagonal scale?

30. What are the necessities of drawing different types of maps?

31. Classify maps according to the purpose of usage.

32. Describe the components of a map with sketches

33. What is cadastral map? Mention its importance

34. Classify map based on function

35. Describe the characteristics of thematic map/ chorochromatic

map/ isopleth map

36. Distinguish among map, globe and plan.

37. Distinguish between large-scale map and small-scale map.

38. The scale of a map was 1cm to 160 km and it has been redrawn

on a new scale i.e. 1cm to 120 km, now

calculate the

magnitude of enlargement in percentage.

39. Define topographical map and state its basic features.

40. Write a short note on Indian series of topographical map.

Give a short note on numbering system of topographical map

152 x 152 with suitable example.

41. Explain how the grid reference system helps to determine a

location in a topographical map.

42. Distinguish serial, composite and superimposed profiles.

43. State the purpose and limitations of angular systems of

measurement.

44. Mention the R.F and contour interval of a SOl topographical

sheet having 10 latitude x 10 longitudinal areal extension.

45. Mention the latitudinal and longitudinal extension of the following SOl topographical maps

(i) 77, (i) 77D, (ii) 77D/5, (iv) 77D/5/SE

46. Write down the R.F. of the following SOI topographical maps

(i) 63, (i) 63F, (ii) 63F/NW, (iv) 63F/10,(v) 63F/10/6, (vi) 63F/ 10/SW

47. Mention the basis of identification of a drainage basin from a topographical map.

48. Describe the advantages and disadvantages of Open Series Map.

49. Two points, M andN (8.80 inch apart on a map), are actually 6666 miles away from each other. Finds the representative fraction.

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e orejnal map?

6Evplain advantazes and disatvantayes of Rereenaive Fraction

57. Two points, M and N (220 incdh apen on a map), are taly KAh mile auay trom esth other. Finds the repeenase fraction

52. The principle of UTM projection and its iarikicance in different felds of cartoyapy.

B.What type of projectiom are wed for topRaphic mapping and why? Explain the advantages and disadrertages f UTM projectiorn

60. Prove that the distance between P i1, y1) and O 2, y2) in Cartesian co-ordinates is {21)2 (y2-1)2}1/2

61. Find the Cartesian co-ordinates of a point whose polar co ordinates is (-2, -450)

62. Find the position of a point P (4,-2400) in polar co-ordinates and transform it to Cartesian co-ordinates.

63. 1f the distance between the points (x, 2) and (3, 4) is 2, then what would be the value of x?

64. The easting value of 'A and 'B' points are 500,200 m E and 498, 500 m E respectively. Find out the location of the points with respect to the central meridian.

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65. Coordinates of two points A and B in the same zone of UTM projection are as follows:

A Easting 420,760, Northing 5,449,670, B Easting 420,710, Northing 5,449,630. Find the distance of AB

66. Explain the UTM coordinate system for measuring Easting and Northing.

67. Why a projection does not maintain both equal-area and orthomorphic property together?

68. Why Zenithal projections are called Azimuthal projection?

69. Describe about the Rectangular Cartesian coordinate.

70. What is the process of calculating quadrant value of tan '?

71. Explain why deformation is inevitable in map projections.

72. What is the arc length of any meridians between two parallels?

73. What is the arc length of any parallel from the equator?

74. What do you mean by Great Circle distance? Calculate Great

Circle distance between Kolkata (22.5726° N, 88.3639° E) and Mumbai (19.0760" N, 72.8777° E).

75. What property it would maintain if at any point of a projection

the two scale factors are exactly equal in magnitude?

76. Which projections are for most suitable for equatorial region and why?

77. Plot (5,-9) on Cartesian coordinate system and plot (4, 2200) on polar coordinate system.

78. What are the advantages of polar and rectangular coordinate system?

79. Differentiate between radial scale factor and tangential scale factor.

80. Given 15 arc length on the equator is represented by 2.61799 cm on the generation globe. Find out the R and R.F 81. Discuss various types of errors that can be occurred during

linear or angular measurements.

82. What is the R.F. of the globe when 10 arc distance represents 1.74532cm length on the equator?

83. The divisions of the parallels for spacing the meridians at 1° interval is do x 1 Name the projection.

2 7r Cos0

360

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84. What are the properties of simple conical projection with two standard parallels?

85. Determine the basic differences between Orthomorphic and Orthographic projection.

86. Why the Bonne's Projection is considered as modified form of Simple Conical Projection with One Standard Projection.

87. What is generating globe. Mention its significance / state its properties.

88. Why UTM zones are limited to 80 degree south to 84 de e north latitude?

89. The length of 50 parallel on the reduced globe is 7683.92 cm calculate the R.F.

90. An arc of 20° measure 3.50 cm on the surface of a reduced globe, determine the R.F.

91. The length of the prime meridian on reduced earth is 40 inch, calculate the R.F.

92. Mention the properties of Mercator's projection.

93. Distinguish perspective, semi perspective and nonperspective

projection.

2 Marks Questions [within 50 wordsl

1. What is a map?

2. How many types of map scales are there?

3. What is the advantage of the RF?

4 4. What is the advantage of a graphical scale?

5.

What is the primary and secondary division?

6. Of the two map scales, one at 1:50,000 and other on 1:100,000-

which one is larger in size?

7. What is a north line?

You have two maps one of 1:1000 scale and the other of

1:200,000 scale. Which is the larger scale map?

9. Find the area in km2 of a topographical sheet having scale

1:50K and the length and width 56 and 51 cm respectively.

8.

10. What is actual scale or real scale?

11. The geographical location of a place is 88Ú403 E and 22Ú 333

N which falls under F45 of Open Series map. State the reference no of the sheet and its scale where this place is located?

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12. State the magnitude of enlargement of Topographical sheet bearing no 651/10 from that of Million sheet map in Old Series system.

13. Which Old Series maps have contour intervals 10m, 20 m and 50 m?

14. Name the types of Vernier when its length is denoted as (n - 1)d and (n + 1)d.

15. State the application of Vernier scale in different fields.

16. 73 J/10 how this ' is found in this index number?

17. Write down the spatial explanation of 43P.

18. Define Scale.

19. How do you calculate the scale of a map?

20. What is an example of a large scale map?

21. What is an example of a small scale map

22. Distinguish between legend and index of a map.

23. What is meant by statement scale?

24. State the concept of C.G.S. and F.P.S. systems in Scale.

25. State the merits and demerits of linear scale.

26. What is R.F? State the merits and demerits of R.F.

27. What is the significance of transect chart?

28. Differentiate Everest and wGs84 datum.

29. What is Million Sheet? Which projection is used to draw million sheets?

30. Describe the utility of 'Index of Sheets.

31. What is 'compilation Index of OSMs.

32. Why do we draw comparative scales?

33. A map bearing scale 1:50000 is reduced 1/9th of its original size. Find the R.F of the new map.

34. What are the forms of graphical scale?

35. In a Vernier scale least count of the main scale is 0.01inch and the number of Vernier scale is 10 then what is the least count of the Vernier scale?

36. What is the R.F of the cadastral map?

37. Why Diagonal scale is called so?

38. What is National Topographical Data Base (NTDB)?

39. Mention the projection and datum for OSMs

40. Mention the importance of administrative index in

topographical sheet

[16]

41. How many types of scales are 42. What ls meant given in topographical sneets by conventional symbol? 43. What do you mean by 3D map? 44. Define thematic map.

45. What are the various elements of a map? 46. State the basic principle of measuring distance with a Vernier Scale.

47. Mention the reference number of four Indian topographical sheet falling to the N-W, N-E, S-E and S-W of topographical sheet number 72K

AR, What do you mean by Degree Sheet of Topographical map? A9. What is the importance of sheet number in topographical map?

50, What is Relative relief map?

51. What do you understand by Average Slope map? 52. How do you identify bad land in a topographical sheet? 53. What is the difference between spot height and bench mark? 54. What is a map projection?

S5. Define a generating globe? How many types of developable surfaces are there?

56. What is developable surface?

57. What is orthomorphism?

58. What do you mean by an antipodal position? 59. Why can't we have a loxodrome in a cylindrical equal-area projection?

60. What is distortion? How many types of distortions are there?

61. Classify map projection on the basis of the projection plane.

62. What is easting and northing?

63. What do you mean by conical projection?

64. Why Mercator projection is useful for navigation?

65. In a UTM zone two points P and Q are located at a distance of

400m from the central meridian towards east and 300 m from

the central meridian towards west respectively. What are

the easting values of P and Q?

66. What is false easting and northing?

67. The size of which body of water is most distorted on a

Mercator projection and why?

A. Red Sea, B. Arctic Ocean, C. Bay of Bengal, D. Atlantic

Ocean, E. Mediterranean Sea

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75 Mention UTM 8rid 2one while reteienre sfhopt no of an jen Series map is F441/45

76 stablish relation between standad par allel and comatant ot Cone

77 t a pont lies 50 m north of the equator whal wauld be its Northing value?

78 What is the use of equidistant profectton

79 Write down the name ot ditterent projeetion whieh is suitable for India.

80 What is X and Y in Rectangular Coordinate

S1 What is Standard Parallel?

82 When O is equal to 0 then what is the value of constant of Cone?

83 When 0 is equal to 90" then what is the value of constant or Cone

84 What is meant by the term Projection 85. What is the are distance of any parallel from the pole?

86 What is Rumbline or loxodrome?

87. What are the forms of 88. Which graphical scale projection is suitable for equatorial region 89. What is central meridian?

90. What is meant by "Great Circle route"? 91. Ditterentiate between tangential seale and radial scale

92. What do you mean by rectangular Cartesian coordnater

18

93. Differentiate 94. Differentiate between spheroid and geoid. projections. between perspective non-perspE

95. Define equidistant projection 96. Define azimuthal projection 97. Distinguish between perspective projection and Sem perspective projection.

98. What do you mean by non-perspective projection? 99. Give idea of projection plane. 100. What do you mean by an equal area projection? 101. What is constant of the cone? 102. What do you mean by zenithal projection? 103. What is cylindrical projection? 104. Why the size of green land is larger in Mercator's projection and squeezed in Cylindrical Equal Area projection explain.

94.

perspective and non-perspective

3. Generic Elective Subjects Syllabus for Honours Students of Other Disciplines

GEOHGECO1T-Physical Geography

6 Credit, 75 Marks (90 classes]

Unit I: Geotectonics and Geomorphology

1. Physical Geography Definition and Scope, Components of

Earth System.

2. Internal Structure of Earth based on Seismic Evidence, Plate

Tectonics and its associated Features.

3 Influence of rocks on topography: Limestone and Granite

4. Evolution of landforms under fluvial process, Normal Cycle of

Erosion of Davis

55.. Formation of erosional and depositional landforms by coastal

and aeolian processes

Unit l1: Climatology and Oceanography

6. Insolation and Heat Balance.

7. Horizontal and Vertical distribution of temperature and

88.. Planetary wind system, characteristics of Monsoon and

pressure

Tropical Cyclone

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99 Climatic Clasification: Köppen

10. Hydrological Cycle, Ocean Bottom Relief Features, ocean currents.

Question pattern

For 75 marks or 6 credit theory course:

FM End Semester to be taken by

University

internal assessment

75 50 25

Courses wthout practical Attendance Continuous evaluation

5 20

10 marks x 02 = 20 (2 out of 3) Details of

may be suitabty split into 2

parts keeping the spirit of the

topic in mind]

0S marks x 04 = 20 (4 out of 7) regulation

02 marks x 05 = 10 (5 out of 9)

a) At least 3 cdass tests of 20

marking of mark each to be taken and

then averaged.

b) Answer scripts to be preserved by college for future reference. These attendance given in should be preserved until publication and review of result is complete

GEOHGECO1T-Physical Geography

10 Marks Questions [within 600 wordsl

1. Discuss the place of Geomorphology within Geography.

2. Explain the origin of the earth's crust. What are the constituent materials of the different layers of the earth's crust? (3+7)

3. Explain how seismic evidence helps us to know the internal structure of the earth. Support your answer with suitable diagrams.

4. Describe the characteristics of different plate margins with special reference to the development of asociated

landforms.

(7+3)

5. Give an account of Davis's concept of landform evolution due to fluvial process.

Explain critically the cycle erosion concept as envisaged by Davis

7. Indicate the various landforms produced by marine erosion and analyse the processes involved in their development.

6.

(6+4)

20]

8. What is insolation? Describe the horizontal distribution of temperature over the surface of the earth. (2+8) 9. Bring out the relationship between global pressure belts and wind systems

10. Discuss the factors that affect the distribution of insolation on the earth's surface.

11. Discuss the structure and formation of tropical cyclone 12. Discuss the various atmospheric conditions which lead to the development of monsoon circulation.

13. Explain the vertical distribution of temperature. What is inversion of temperature?

14. Give a detailed account of Koppen's classification of world climate.

15. Discuss the different phases of global hydrological cycle.

S Marks Questions [within 150 words

1. What are the landforms associated with convergent plate boundaries?

2. How are mid-oceanic ridges formed?

Describe the structure of the earth's interior with diagram.

3.

4. Explain with diagram the formation of tors on a Granitic landscape.

5. Discuss the process by which pediment and bajadas are formed.

6.

Explain the formation of spit and bar

7. How does a wave-cut platform originate?

8. What do you understand by base level of erosion?

9. Bring out the salient features of the topography developed on Limestone rock.

10. Discuss the causes which lead to inversion of temperature.

11. Explain how the Heat Balance over the surface of the earth is maintained.

12. What are the factors that contribute to the uncertainty of the monsoon?

13. Describe the course of the Kuroshio Current with diagram.

14. Distinguish between
continental shelf and continental slope.

15. What do you
understand by "basin hydrological cycle'?

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2 Marks Questions [within 50 words

1. How are oceanic trenches formed?

2. What is Benioff Zone?

3. What are 'Plates'?

4. What is a Hot Spot?

5. What are the characteristics of P-waves?

What is 'nick point'?

What do yoú understand by longshore drift? 8

6.

7.

What are equatorial westerlies?

What is meant by the 'eye' of the cyclone?

10. What is Jet Stream?

9.

11. What is Hadley Cell?

12. What is thermal equator?

13. Define Coriolis force.

14. What is Adiabatic Lapse Rate?

15. Define aquifer.