

NEW
Part II 3-Tier
2015

GEOGRAPHY .

(Honours)

PAPER—V (Set-1)

(PRACTICAL)

Full Marks : 100

Time : 6 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.

Answer all questions.

1. (a) Length of a river on a map with the scale 1 : 40,000 is measured as 20 cm. Find its ground length. Find also the map lengths of the same :
- (i) When the map is reduced to the scale 1 : 80,000.
 - (ii) When the map is enlarged to the scale 1 : 20,000.

$$1 + 1\frac{1}{2} + 1\frac{1}{2}$$

- (b) Draw a diagonal scale with the R.F of original map showing 3 miles 4 furlongs 80 yards. 6

(Turn Over)

2. Draw a suitable proportional diagram to show household size of the following data of six stations. Interpret the diagram.

Station	No. of Household	Total Population
A	15,244	98,712
B	8,889	73,892
C	11,021	55,647
D	24,352	1,02,578
E	9,261	68,967
F	7,213	43,678

8+2

3. (a) Draw a suitable diagram using the following data.

Month	Avg. Temp (°C)	Rainfall (mm)	Crops	Crop Area (1000 hec)	Crop Season
January	22.50	26.0	Aman	260.2	July to Oct.
February	23.45	5.0			
March	30.24	172.0			
April	33.28	62.0	Pulses	11.5	Sept. to Nov.
May	34.15	115.0			
June	36.92	185.0			
July	31.59	295.0	Oil Seeds	21.5	Nov. to Jan.
August	29.12	310.0			
September	28.73	412.0			
October	27.64	319.0	Fibres	1.8	May to August
November	22.12	15.0			
December	18.86	0	Others	8.9	Dec. to March

(b) What may be the impact of Micro climate on crop calender ? 8+2

4. Prepare a choropleth map with the following district wise Area & Population data of West Bengal and interpret it.

Sl No.	District	Area in (km ²)	Population (2011)
1.	Bardhaman	7024	7723663
2.	Birbhum	4545	3502387
3.	Bankura	6882	3596292
4.	Purba Medinipur	4736	5094238
5.	Paschim Medinipur	9345	5943300
6.	Howrah	1467	4841638
7.	Hugli	3149	5520389
8.	Uttar 24-Pargana	4094	10082852
9.	Dakshim 24-Parganas	9960	8153176
10.	Nadia	3927	5168488
11.	Murshidabad	5324	7102430
12.	Uttar Dinajpur	3140	3000849
13.	Dakshin Dinajpur	2219	1670931
14.	Maldah	3733	3997970
15.	Jalpaiguri	2844	3869675
16.	Darjeeling	3149	1842034
17.	Coochbehar	6770	2822780
18.	Puruliya	6259	2927965
19.	Kolkata	185	4486679

8+2

5. (a) Draw a neat graticules on Polyconic Projection for an area extending from $50^{\circ}\text{s} - 90^{\circ}\text{s}$ and $120^{\circ}\text{w} - 180^{\circ}$ at an interval of 10° when diameter of the generating globe is 40 cm. Also calculate the R.F of this projection.

(b) What is aphyllactic projection? Give example.

16+1+3

6. Any one of the following survey to be done (alloted by lottery).

(a) Make a closed traverse (MNOP) survey with the help of Prismatic Compass given in the field.

- (i) Enter the readings on a neatly drawn field book.
- (ii) Complete the table with necessary corrections.
- (iii) Plot the traverse on a suitable scale by parallel meridian method.
- (iv) Calculate the included angles of the traverse.

7+7+7+4

Or

(b) Make a Dumpy Level Survey along the line AB (30m long) taking staff reading at 3m. interval (change point at 12m)

- (i) Enter the readings in a neatly drawn field book.
- (ii) Calculate the reduced level of the stations when BM at 15m is 18.5m.
- (iii) Draw the profile A B on a suitable scale.
- (iv) Find out the gradient between the first station and last point.

7+7+8+3

Or

- (c) Determine the height and distance of the given object with Theodolite (base in accessible method)
 - (i) Prepare a neat field book & enter the readings taken.
 - (ii) Calculate the height & distance of the object.
 - (iii) Plot the data with suitable scale.
 - (iv) Calculate the slanting distance between the station of observation and the object.
 - (v) Mention the sources of error in theodolite survey.

8+6+7+2+2

7. (a) Mention the use of GPS instrument.

(b) What is traverse?

3+2

8. Laboratory Note Book and Viva-Voce.

5+5

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Answer all questions.

- (a) The area of a large water body on the original map and that of the reproduced map with R.F. 1 : 50,000 is measured as 2 sq.cm and 8 sq.cm respectively. What is the scale of the original map and the magnitude of reduction or enlargement of reproduced map.

(b) Draw a linear comparative scale of 5000 metres and 5,000 yards ground distance of which the primary divisions are 1,000 metres and 1000 yards respectively while the secondary divisions are 250 metres and 250 yards respectively with the R.F. 1 : 45000.

4+6

(Turn Over)

2. Draw a Hythergraph of station X on the basis of the following data and interpret it.

Months	J	F	M	A	M	June	July	A	S	O	N	D
Temperature in °F	62	64	72	84	90	91	90	86	84	80	70	62
Rainfall in inches	0.1	0.2	0.15	0.05	0.15	0.3	2.6	1.9	0.8	0.1	0.05	0.1

8+2

3. Draw proportional circles with the following data and interpret the distribution.

Block	A	B	C	D	E	F	G
Schedule Tribe population	37034	49045	41050	30000	36632	600000	37089

H	I	J	K
38587	42696	45961	48348

8+2

4. (a) Prepare a choropleth map to show the population density of C.D. Blocks of Hugli district and interpret it.

Sl. No.	C.D. Block	Area (Km ²)	Total Population (2001)
1.	Goghat — I	186.32	125277
2.	Goghat — II	190.03	143353
3.	Arambag	288.35	253507
4.	Pursura	100.42	156212
5.	Tarakeswar	123.83	162355
6.	Dhanekhali	275.68	293305

(Contd.)

Sl. No.	C.D. Block	Area (Km ²)	Total Population (2001)
7.	Pandua	276.43	255878
8.	Balagarh	202.15	209992
9.	Chinsura-Magra	108.20	112267
10.	Polba-Dadpur	285.69	239467
11.	Haripal	184.42	235671
12.	Singur	207.72	241190
13.	Srerampur-Uttarpara	86.52	51679
14.	Chanditala — I	93.45	165837
15.	Chinditala — II	70.34	123018
16.	Jangipara	164.23	200936
17.	Khanakul — I	171.92	221832
18.	Khanakul — II	121.83	160871

8+2

5. (a) Draw the graticules of Sanson-Flamsteed Projection for an area extending from 10°S to 45°S and 110°E to 150°E at an interval of 5° when the length of the equator of the generating globe is 100.57143 cm. what is the R.F. of this projection?

- (b) Distinguish between perspective and non perspective projection.

16+1+3

6. Attempt any one of the survey after lottery :

- (a) Make a Prismatic Compass survey for a closed traverse ABCD given in the field.

- (i) Prepare the field book and enter the readings.
 (ii) Make necessary corrections.
 (iii) Plot the traverse by Parallel Meridian Method.
 (iv) Find out the actual ground area of the traverse.

8+7+5+5

Or

(b) Find the height and distance of an object (base inaccessible) with transit theodolite.

- (i) Prepare a neat field book and enter the readings taken.
- (ii) Calculate the height of the object.
- (iii) Plot the data with suitable scale.
- (iv) Calculate the slanting distance from the top of the object and instrument base.
- (v) Mention the sources the error in Theodolite Survey. 9+8+4+2+2

Or

(c) Run a dumpy level survey along the line PQ (30m) taking staff readings at 5m interval (C.P. at 15m). Bench Mark at Change Point is 20m.

- (i) Enter the readings on a neatly drawn field book.
- (ii) Calculate the Reduced Levels of the stations.
- (iii) Draw the profile PQ on a suitable scale selecting suitable datum.
- (iv) Find out the gradient between first station and terminal station. 8+5+8+4

7. What are the major applications of GPS Survey? What do you mean by included angle. 3+2

8. Laboratory Note Book and Viva-Voce. 5+5

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Answer all questions.

1. (a) A map is redrawn by reducing $\frac{1}{3}$ of the original size.

If the scale of new map is 1: 1,20,000 what would be the scale of the original map? 2

- (b) Construct a vernier scale on the basis of the following information :

- (i) Main scale reading $36^{\circ}36'$
(ii) Total reading on vernier scale $0^{\circ}5'24''$ when 9th mark of vernier division coincides with any one forward division of main scale.
(iii) Least count of main scale is $\frac{1}{10}$ th of a degree.

8

(Turn Over)

2. (a) Why cartogram is important in geographical analysis ?
 (b) Draw age-sex pyramid on the basis of the following data and calculate the percentage of teen age and old age dependent population.

Age Group	% of male	% of female
0—4	9.59	9.55
5—9	12.11	12.12
10—14	12.13	12.41
15—19	9.59	9.75
20—24	9.26	8.96
25—29	9.32	8.83
30—34	7.59	7.66
35—39	7.17	7.27
40—44	4.80	5.37
45—49	4.72	4.57
50—54	3.18	3.29
55—59	2.88	2.90
60 +	7.68	7.32

6+2+2

3. Draw a climograph on the basis of the following data.

Months	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
Wet Bulb Temperature (°c)	18-22	20-28	21-39	26-61	28-28	27-94	27-11	27-06	26-94	25-56	20-50	20-22
Relative Humidity (%)	40	44	38	38	57	69	81	79	75	72	4	48

- (a) Convert the temperature data suitable for Taylors' climograph.
- (b) Draw the diagram on suitable scale.
- (c) Indicate the climatic characteristics of the area.

2+6+2

4. Prepare a Choropleth maps using the following data of Malda district and interpret it.

Sl. No.	Name of the Block	Area (in sq km)	Population (2001)
1.	Harischandapur — I	171.41	162046
2.	Harischandapur — II	217.21	198039
3.	Chanchal — I	162.14	174204
4.	Chanchal — II	205.22	165192
5.	Ratua — I	230.53	217356
6.	Ratua — II	173.93	160904
7.	Gajal	513.65	294715
8.	Bamangola	205.91	127252
9.	Habibpur	396.07	187650
10.	Malda	215.66	131255
11.	English Bazar	251.91	226215
12.	Manikchalk	316.28	214123
13.	Kaliachalk — I	106.59	310821
14.	Kaliachalk — II	209.23	211533
15.	Kaliachalk — III	254.79	284351

8+2

5. (a) Prove that the radius (r_ϕ) of any Parallel of latitude on Stereographic Projection (Polar case) is $2R \tan$

$$\frac{90^\circ - \phi}{2}$$

- (b) Draw a neat graticules of polar Zenithal Orthomorphic projection for an area extending from 65°N to 90°N and 40°W to 20°E at an interval of 5° when the diameter of the generating globe is 36.57143 cm. Also calculate the R.F. of this Projection.

4+15+1

6. Attempt any one of the following survey. (to be allotted by lottery):

- (A) Make a closed Traverse Survey by Prismatic Compass for the area PQRS (given in the field).

- (i) Prepare a proper Field Book and enter the readings from the field survey.
- (ii) Make necessary corrections and plot the traverse by parallel meridian method.
- (iii) Calculate the area of the traverse.
- (iv) State the principle of Bowditch method of closing error correction.

8+4+6+5+2

Or

(B) Prepare a contour plan of an area by Dumpy Level and Prismatic compass taking at least three radiating lines (OA, OB, OC) with the length of 15m take readings in each direction at 3m interval. R.L. of the common station is assumed 21m :

- (i) Enter the reading in a neatly drawn field book.
- (ii) Calculate the reduced levels of the marked stations.
- (iii) Draw at least three contour lines at the same interval.

10+8+7

Or

(C) Determine the height of a given object by transit theodolite following base inaccessible method.

- (i) Prepare a proper field book and enter the readings.
- (ii) Calculate the height of the object.
- (iii) Calculate the slanting distance between object and the station of observation.
- (iv) Plot the data with suitable scale.
- (v) Mention the sources of error in theodolite survey.

8+4+4+6+3

7. Briefly mention the principles and applications of GPS.

5

8. Laboratory Note Book and Viva-Voce.

5+5
