FACULTY OF SCIENCE

B.Sc.V – Semester (Practical) Examination
Subject: Geology
Paper: V
Question Bank

Time: 2 Hours Max   **Marks: 25**

I. Identify the Fossils **(from 1-6)** and write their Morphology, classification, geological age and stratigraphic position of important of Invertebrate fossils?   (6×2 = 12Marks)

1.Cidaris, 2.Micraste, 3. Holaster, 4.Hemister, 5.Terebrtula, 6.Spirifer, 7.Rhynchonella. 8.Productus, 9.Turritella, 10.Murex, 11.Cypraea, 12.Natica, 13.Valuta, 14.Pecten, 15.Gryphaea, 16.Arca, 17.Cardita, 18.Exogyra, 19.Nautilus, 20.Ammonoids. 21.Bellemnites, 22.Calymene, 23.Paradoxide, 24.Corals, and 25.Graptolites.

II. Identify the Fossil **7** and drawing their figure, Morphoogy, classification, geological age and stratigraphic position of important of Invertebrate fossils?   (1×3= 3Marks)

1.Cidaris, 2.Micraste, 3. Holaster, 4.Hemister, 5.Terebrtula, 6.Spirifer, 7.Rhynchonella. 8.Productus, 9.Turritella, 10.Murex, 11.Cypraea, 12.Nautica, 13.Valuta, 14.Pecten, 15.Gryphaea, 16.Arca, 17.Cardita, 18.Exogyra, 19.Natilus, 20.Ammonoids. 21.Bellemnites, 22.Calymene, 23.Paradoxide, 24.Corals, and 25.Graptolites.

III. Identify the Fossils **8** and Morphology, classification, geological age and stratigraphic position of important of Plant fossils?   (1×2 = 2Marks)
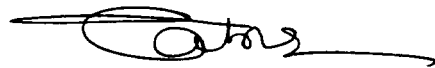
1.Glossopteris, 2.Gangamopteris, and 3.Ptylophyllum

IV. Identify the Fossils **9** and drawing their figure, Morphology, classification, geological age and stratigraphic position of important of Plant fossils?   (1×3= 3Marks)

1.Glossopteris, 2.Gangamopteris, and 3.Ptylophyllum

V. Record   (1×5= 5Marks)

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Faculty of science

B.Sc V Semester (Practical Examination)

Subject: Environmental Geology

Paper VI (Elective)

Question Bank

QUESTION NO.1

Determine the grain size distribution from the given data

(3X1= 3M)

A.

S. No	1	2	3	4	5	6	7	8	9	10
Size of the Grains	0.05	0.06	0.12	0.16	0.18	0.35	.050	0.71	1.18	2.0
Weight of the sample	3.30	7.22	0.15	73.90	126.50	44.91	15.29	20.26	4.0	3.59

B.

S. No	1	2	3	4	5	6	7	8	9	10	11	12	13
Size of the Grains	0.05	0.06	0.12	0.16	0.18	0.35	.050	0.71	1.51	2.0	5	10	12
Weight of the sample	1.762	0.720	0.200	10.255	7.309	6.250	4.931	15.431	21.925	38.185	5.030	13.00	15.05

C.
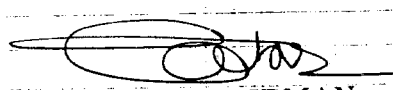
S. No	1	2	3	4	5	6	7
Size of the Grains	0.35	0.50	0.71	1.51	2.0	5	7
Weigth of the sample	6	30	64	6	34	26	34

D.

S. No	1	2	3	4	5	6	7	8
Size of the Grains	4.75	20.0	0.84	0.425	0.250	0.150	0.075	0.025
Weight of the sample	9.74	39.50	75.60	129.10	107.40	8.50	4.20	6.58

E.

S. No	1	2	3	4	5	6	7	8	9	10	11	12
Size of the Grains	10	5	2	1.18	0.71	0.5	0.35	0.25	0.18	0.12	0.06	0.05
Wt of the sample	13	5.030	38.185	21.925	15.435	6.250	7.309	10.255	0.200	0.720	1.762	2.054

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QUESTION NO. II

(2X2 = 4M)

Determine the physical properties of the Industrial minerals

2. Barite 3. Asbestos 4. Clay 5

. Coal 6. Kyanite 7. Gypsum 8. Quartz 9. Mica 10. Feldspars

(2x1 = 2M)

QUESTION NO. III.

Study the beach profile

11.   12.   13.

(3X1 = 3M)

QUESTION NO. IV

1. The alkanity and hardness of a water sample are 250mg/l and 350mg/l calculate CaCO3 of the given water sample.

2. Water contains following dissolved ions Na^+ = 56 mg/l; Ca^{+2} = 40mg/l; Al^{+3} = 3mg/l; Ph = 7; HCO_3- = 190mg/l Mg^{+2} = 30 mg/l Cl^- = 165mg/l Calculate total hardness of the sample in mg/l as Ca CO3

(equivalent weight of Ca CO3 = 50)

3. Water contains following dissolved ions Ca^{+2} = 40mg/l; Al^{+3} = 3mg/l; Ph = 7; HCO_3- = 30mg/l Mg^{+2} = 18 mg/l; CO_3 = 5 ;Ca^{+2} = 12 ; Cl^- = 15mg/l; SO_4^{-2} = 15; Ph = 8.5 Calculate total hardness of the sample in mg/l as Ca CO_3 (equivalent weight of Ca CO3 = 50)

(2x1 = 2M)

QUESTION NO. V

1. Ph of water incoming water is 7.2 and out coming water is 8.4. Find the average value of Ph of the water sample.

2. Find the Ph of the given sample if OH- ion concentration is $10^{-5.6}$ milli moles/litres (convert milli moles to moles/liter)and interpret the nature of the sample.

3. If Ph of the water sample is given as 9.25 then find the concentration of hydroxyl ion

(3x1 = 3M)

QUESTION NO.VI

1 . Estimation of Manganese by spectophotometric method and write the procedure for the experiment.

2. Estimation of Oxygen dissolved by the titrimetric method with procedure.

3. Estimation of Sodium by Flame photometer with procedure

(3x1= 3M)

QUESTION NO. VII

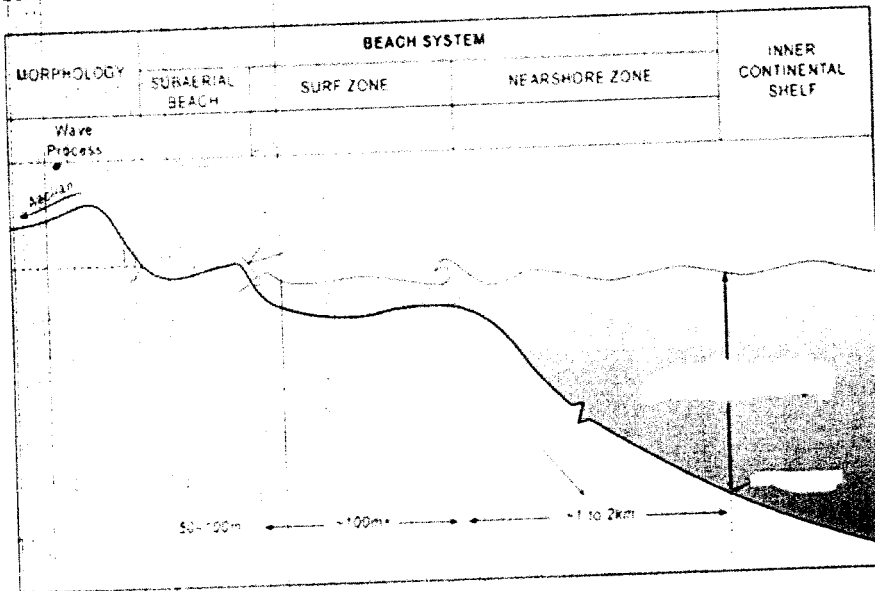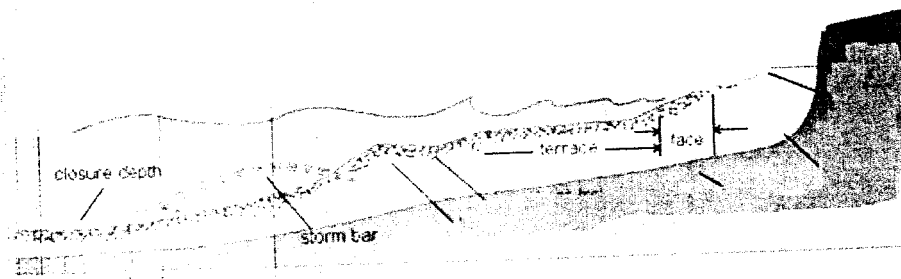Sieve Analysis with procedure

(1x5 = 5M)

QUESTION NO.VIII

RECORD

11.

SUMMER BEACH

WINTER BEACH

12.

	BEACH SYSTEM			INNER CONTINENTAL SHELF
MORPHOLOGY	SUBAERIAL BEACH	SURF ZONE	NEARSHORE ZONE	

Wave Process

50-100m — ~100m — ~1 to 2km

13.

closure depth

terrace — face

storm bar

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Max. Marks: 25

Time 2 hours

$(1 \times 2.5 = 2.5M)$

QUESTION NO.1

a. A constant head permeability test has been run on a san d sample of 25cm in length and 30cm2 in area under a head of 40cm. The discharge was found to be 200 cc in 116 seconds. Determine the coefficient of permeability.

b. Falling head permeability test has been done on a relatively fine grained soil sample 20cm in length and 25cm2 in area. In the sand pipe, the initial head ho is 0.5 cm and the final reading of hq is 0.25cm after a time lapse of 8 min. The diameter of the sand pipe is 2.51cm. Calculate the permeability of the given soil sample.

c. An unsaturated core sample is obtained from a sandy material at a distance of about 50 cm above water table. The core is 10.186cm height and 5 cm in diameter. The net weight of sample in air is 147.6 gms, weight of the sample after saturation of water is 87.08gms. Weight of the sample in air is 152.14gms. Calculate the grain volume, bulk volume, bulk density, apparent density and porosity of the sample.

$(1 \times 3 = 3M)$

QUESTION NO. II

Determine the Uniform Co-efficient from the Grain size distribution data of the River alluvium

A.

S. No	1	2	3	4	5	6	7	8
Size of the Grains (mm)	4.20	8.50	105.08	107.40	120.10	71.00	39.80	9.79
Wt of the sample in gms	0.89	1.79	22.20	22.16	27.17	15.10	8.32	2.06

B.

S. No	1	2	3	4	5	6	7	8	9	10	11	12
Size of the Grains (mm)	0.05	0.06	0.12	0.16	0.18	0.25	.050	0.71	1.51	2.0	5	10
Wt of the sample in gms	1.762	0.720	0.200	10.255	7.309	7.306	4.931	15.431	21.925	38.185	5.030	13.00

C.

S. No	1	2	3	4	5	6	7
Size of the Grains (mm)	0.35	0.50	0.71	1.18	2.0	5	10
Wt of the sample in gms	6	30	64	6	34	26	34

D.

S. No	1	2	3	4	5	6	7	8
Size of the Grains(mm)	0.35	0.50	0.71	1.18	2.0	5	10	0.35
Wt of the sample in gms	9.74	39.50	75.60	129.10	107.40	8.50	4.20	6.58

E.

S. No	1	2	3	4	5	6	7	8	9	10	11	12
Size of the Grains(mm)	4.25	4.00	3.75	3.50	3.25	3.00	2.75	2.50	2.25	2.00	1.75	1.50
Wt of the sample in gms	0.72	4.87	1.50	13.41	15.13	23.94	36.62	25.12	3.72	13.88	1.75	0.88

F.

S. No	1	2	3	4	5	6	7	8	9	10
Size of the Grains(mm)	0.05	0.06	0.12	0.16	0.18	0.25	.050	0.71	1.51	2.0
Wt of the sample in gms	3.30	7.22	0.15	73.90	126.50	44.91	15.29	20.26	4.00	3.59

QUESTION NO. III.

(1x2.5 = 2.5M)

Determine the pH Electrical conductivity and TDS in the given water sample
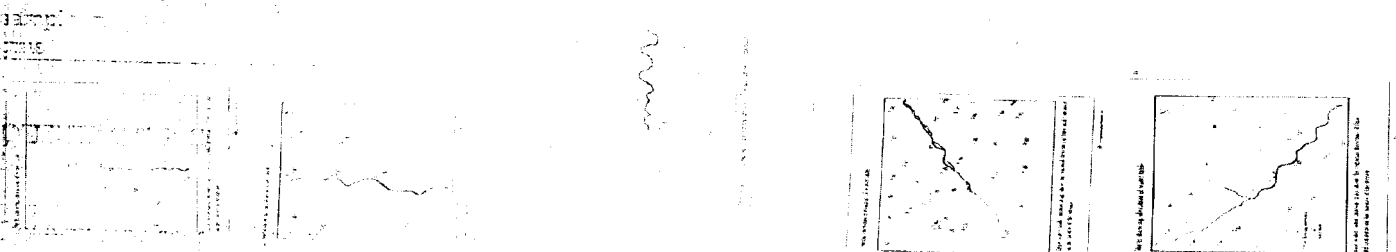
QUESTION NO. IV

(1x2= 2M)

Describe the Well inventory data details of the given area in detail and explain.

QUESTION NO. V

(1x2.5=2.5M)

Draw a Water table contour map, show the regional direction of flow and comment on the nature of the Stream

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QUESTION NO. VI

Determine the resistivity thickness of subsurface strata from the given VES data

Data – 1

S.No	AB/2	ρa
1	2	50
2	5	39
3	8	21
4	10	17
5	15	9.5
6	20	7.5
7	25	7.5
8	30	7.8
9	35	8
10	40	9.4
11	50	11
12	60	12.5
13		
14		

Data-2

S.No	AB/2	ρa
1	2	40
2	5	12.5
3	8	4.8
4	10	3.5
5	15	3.0
6	20	3.
7	30	3.5
8	40	4.5
9	50	5.0
10	60	6.0
11	70	7.0
12	80	8.0
13	90	9.0
14	100	10.0

Data-3

S.No	AB/2	ρa
1	2	30
2	5	30
3	8	27
4	10	21
5	15	14
6	20	10
7	25	9
8	30	9.2
9	35	10
10	40	11
11	50	13
12	60	16
13	70	18
14	80	20

Data – 4

S.No	AB/2	ρa
1	2	12
2	5	10
3	8	7
4	10	5
5	15	3.7
6	20	3.8
7	25	5
8	30	6
9	35	6.8
10	40	8.2
11	50	10

Data-5

S.No	AB/2	ρa
1	2	10
2	5	12
3	8	13.8
4	10	14
5	15	14.5
6	20	15
7	30	16
8	40	16.5
9	50	18
10	60	20
11	70	22
12	80	25
13	90	30
14	100	38

Data-6

S.No	AB/2	ρa
1	2	30
2	5	48
3	8	59
4	10	62
5	15	75
6	20	90
7	25	120
8	30	145
9	35	180
10	40	200
11	50	330

(1x2.5 = 2.5M)

QUESTION NO.VII
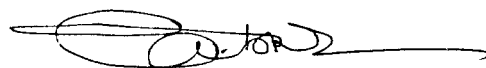
Draw the hydro geological and drainage features of the given Satellite Imagery (FCC) with emphasis on Geological lineaments of the given map
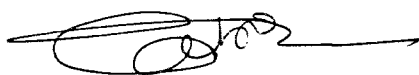
(1x5 = 5M)

RECORD

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WELL INVENTORY DATA COLLECTION

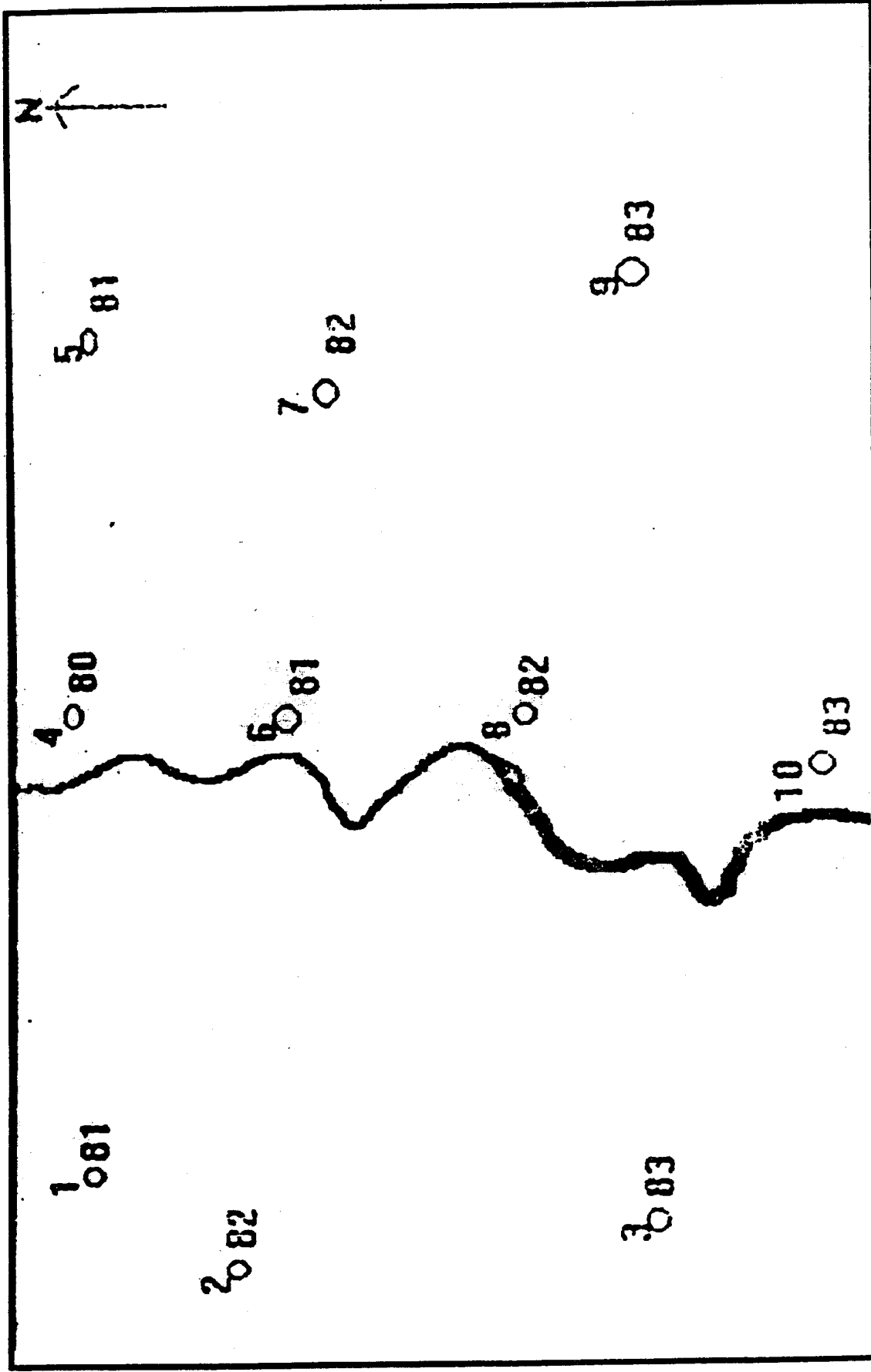| S.No.	Item	Date:		
1	Village/Town		Mandal/District	
1a	Well location			
2	Toposheet			
3	Co-ordinates	NL:	EL:	
4	Elevation (m)			
5	Basin/ Sub-basin		Watershed	
6	Geomorphology		Local Topography	
7	Type of well	BW/HP/DW		
8	Owner's Name			
9	Total Depth (m)		weathering thick ness (m)	
10	Length of Casing (m)		Year of Construction	
11	Water bearing zone			
12	Aquifer	I/II/III/ Cumulative	Geology	WG/WFG/FG/AL
13	DTW (mbgl)			
14	Use	Irrigation/Domestic		
15	Discharge (lps)			
16	HP .	3/5/7.5	Delivery pipe dia (")	
17	Season	Crop	Daily pumpage (Hrs) / No. of Days of Pumping	Area (Acres)
a	Khariff (June-Sept)	Paddy/Non-Paddy		
b	Rabi (Oct-Jan)	Paddy/Non-Paddy		
c	Summer Crop	Paddy/Non-Paddy		
d			Annual Draft	
18	Recharge Source, if any nearby (distance)			
19	Status of Village Water Supply			
20	Information related to Bore-well success rate / fracture zones dapth / recharge structures / Watershed committee in the Village / nearby			
21	Any other relavent information:			

Signature

Wells showing elevation of water table

N↑

1 o 81

2 o 82

4 o 80

6 o 81

8 o 82

3 o 83

10 o 83

5 o 81

7 o 82

9 o 83

Draw water table contour map, show the regional direction of flow and comment on the nature of the stream.
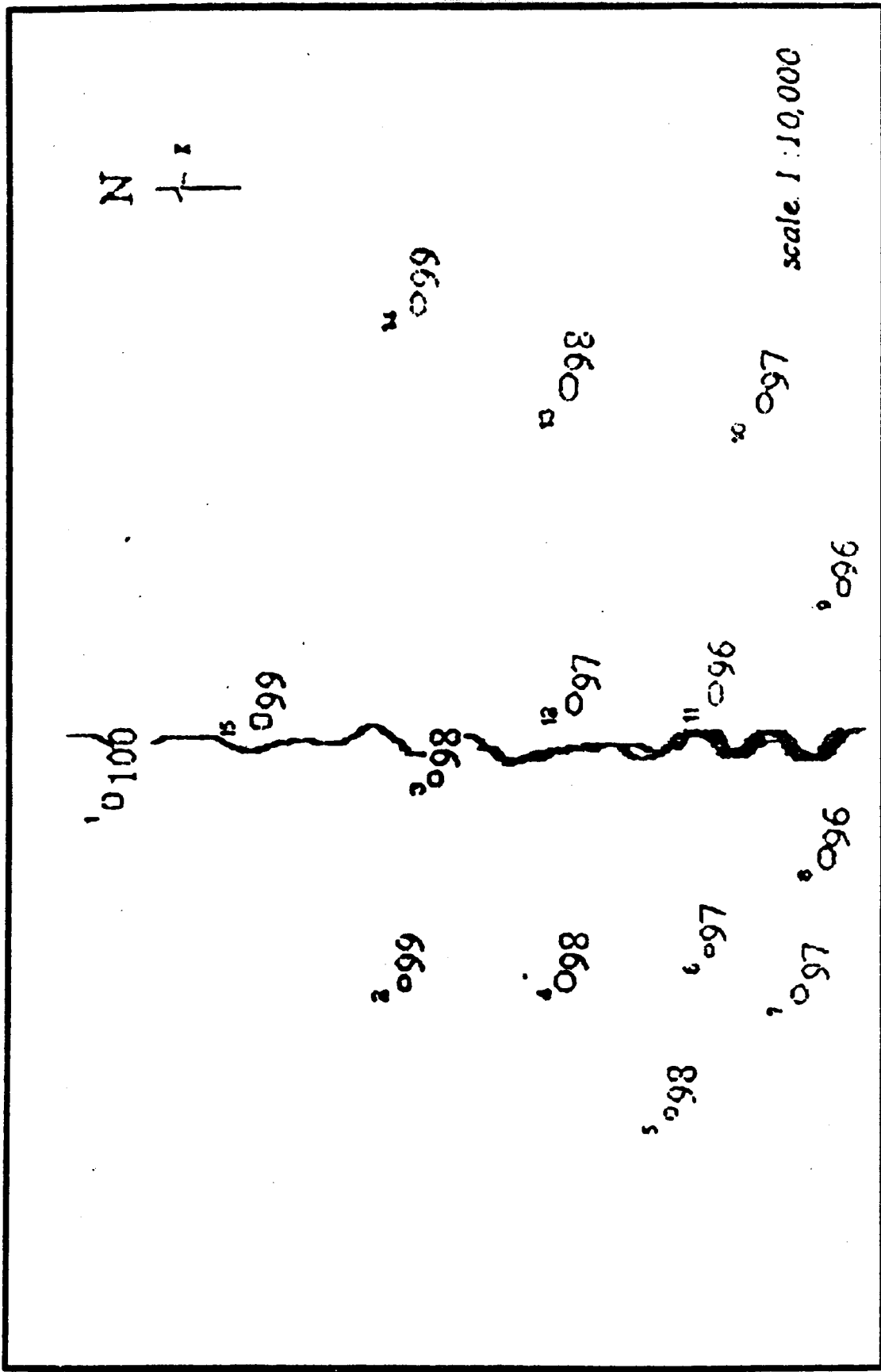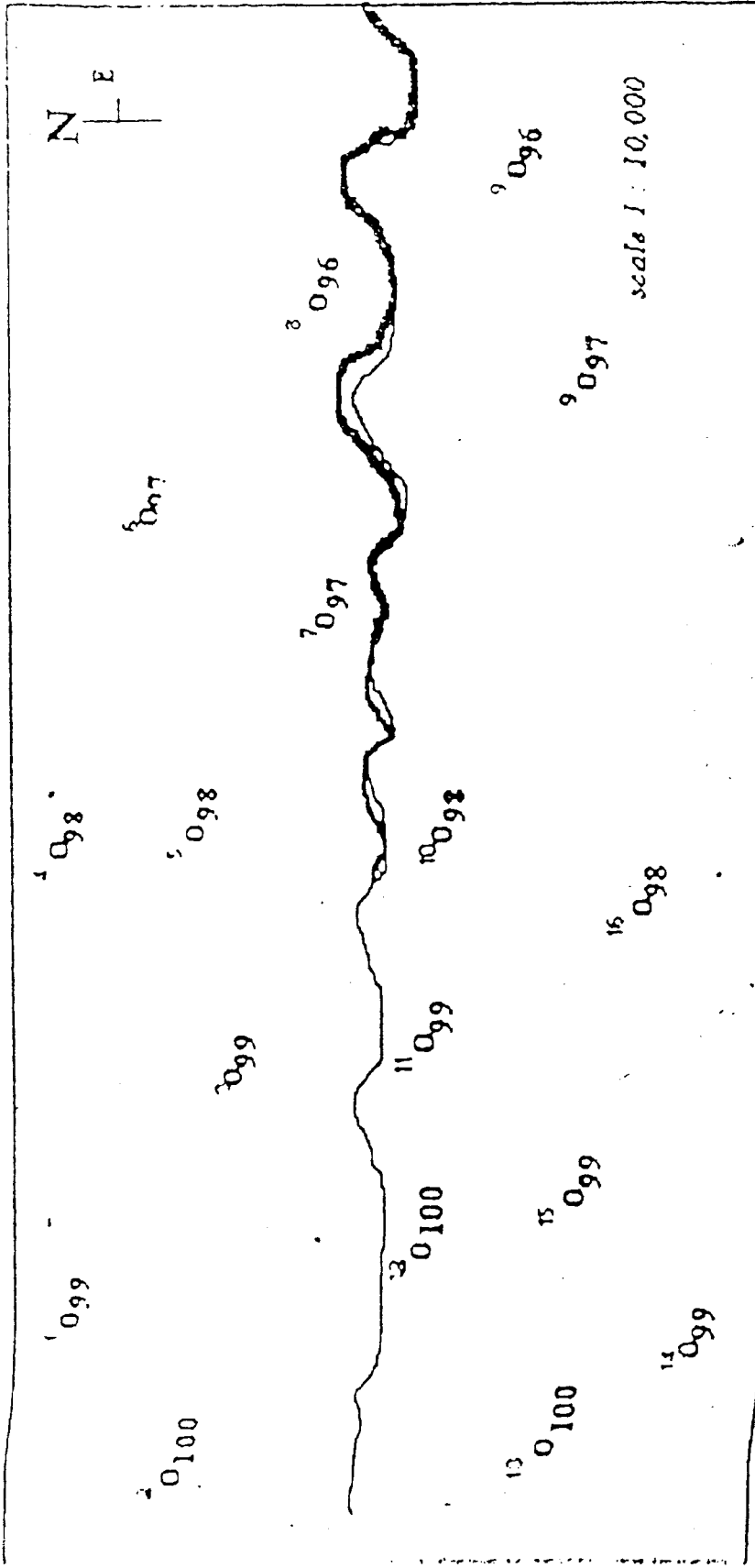
Wells showing elevation of water table

scale 1:10,000

Draw water table contour map, show the regional direction of flow and comment on the nature of the stream.
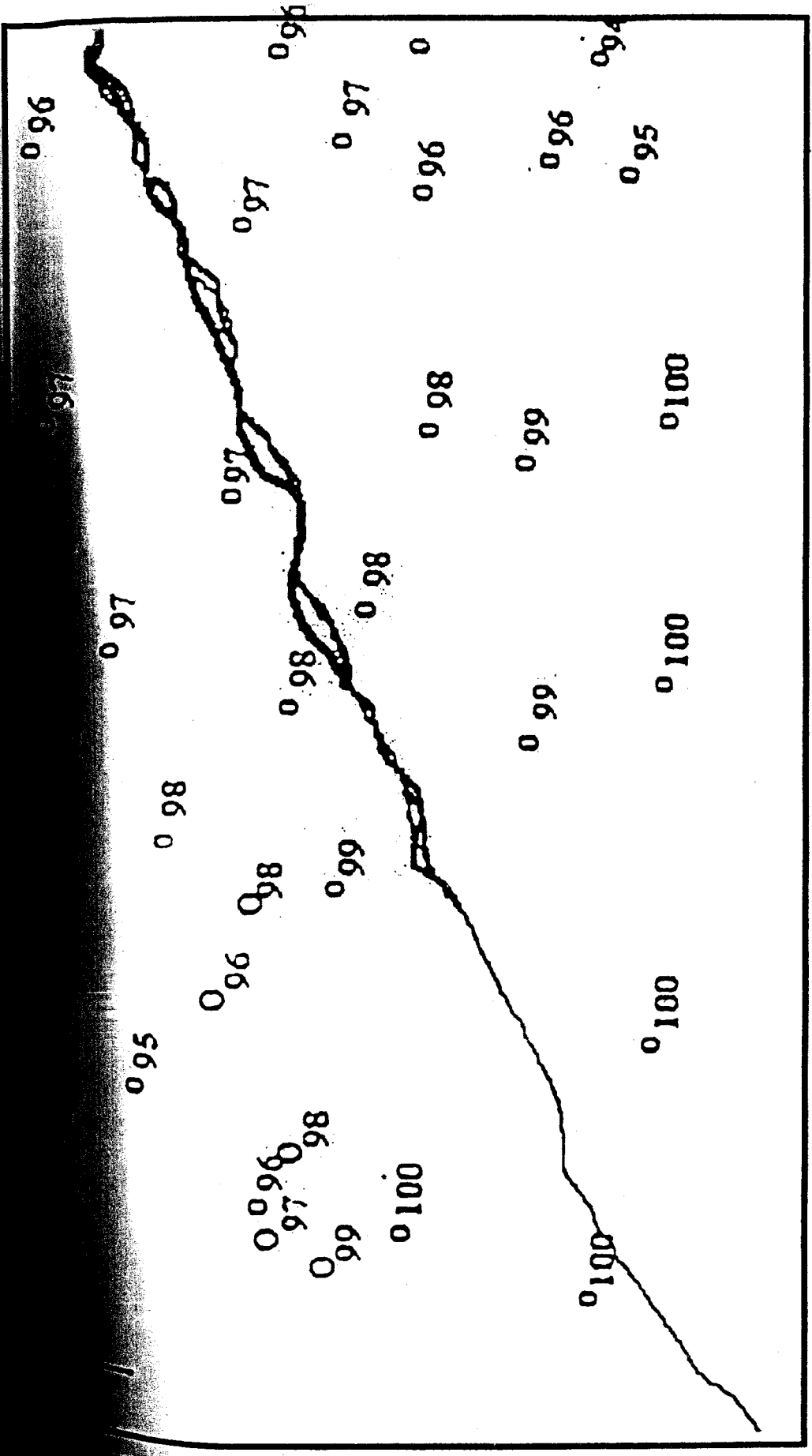
Wells showing elevation of water table

Draw water table contour map, show the regional direction of flow and comment on the nature of the stream

scale 1 : 10,000

Wells showing elevation of water table

Draw water table contour map, show the regional direction of flow and comment on the nature of the stream

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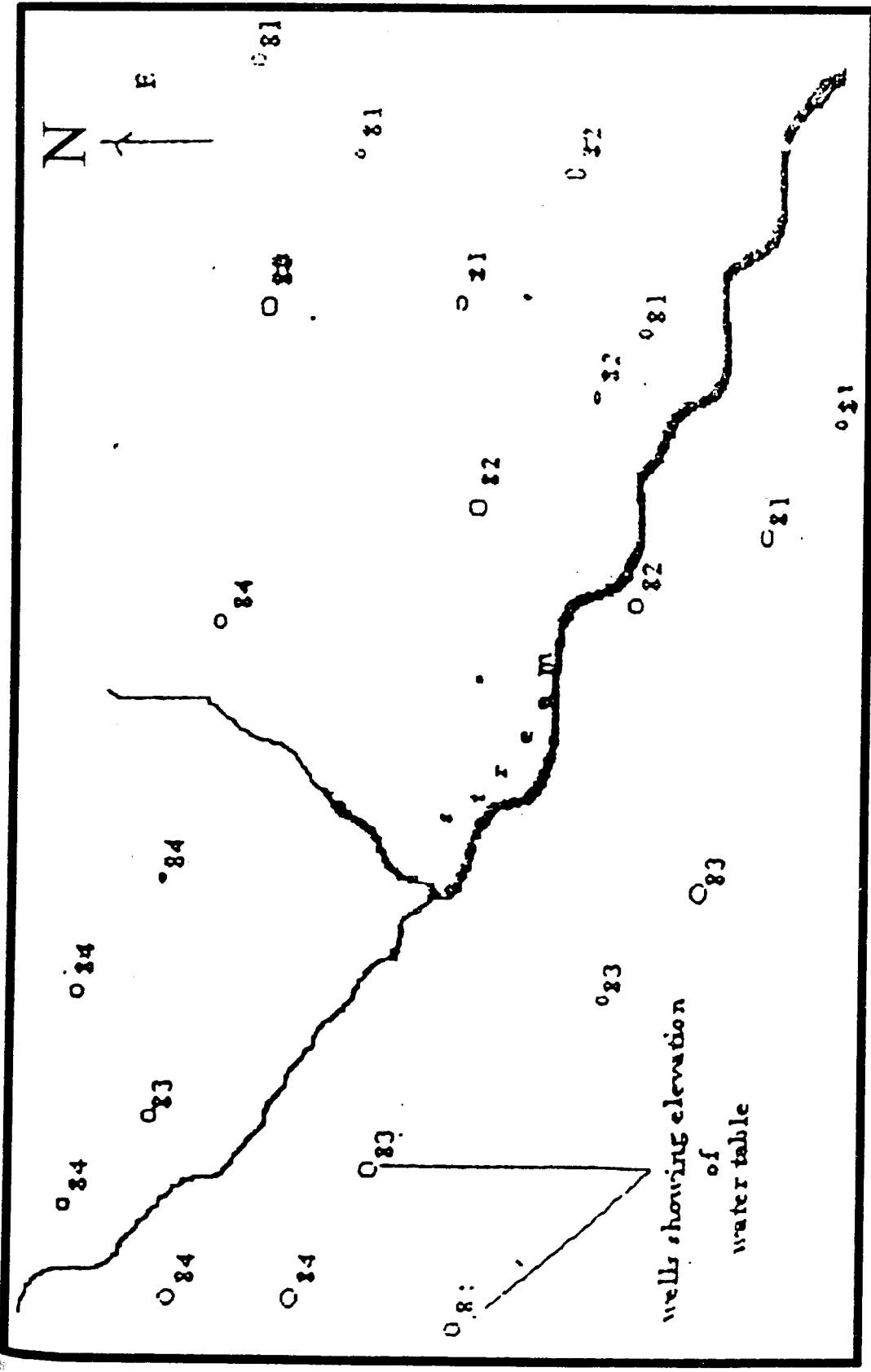
N

E

Wells showing elevation
of
water table

**Draw water table contour map, show the regional direction of flow
and comment on the nature of the stream**