

**GOVERNMENT DEGREE COLLEGE,
RAZOLE,
EAST GODAVARI DISTRICT**



**DEPARTMENT OF CHEMISTRY
CERTIFICATE COURSE**

FOR

2021-22

“WATER QUALITY ANALYSIS”



GOVERNMENT DEGREE COLLEGE

RAZOLE, Dr B R AMBEDKAR KONASEEMA (Dist), A.P-533242

NAAC Re-Accredited with 'B' Grade

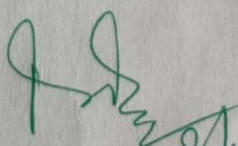



DEPARTMENT OF CHEMISTRY

MINUTES OF THE DEPARTMENT

A staff meeting has been conducted in the department on 08-11-2021

- It is resolved to introduce “certificate course for the academic year 2021-22.
- It is resolved to conduct certificate course for the second year students.
- It is resolved to conduct classes for 30 working hours on the syllabus presented.
- It is resolved to approve the syllabus and model paper. It is resolved to conduct external examination for 40 marks as objective questions.


PRINCIPAL
GOVERNMENT DEGREE COLLEGE
RAZOLE, Dr.B.R.A.Konaseema Dt. A.P.


8-11-2021
Incharge of the Chemistry Dept.
Govt. Degree College
RAZOLE - 533 242
Dr. BR. AmbedkarKonaseema Dt.



GOVERNMENT DEGREE COLLEGE

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DEPARTMENT OF CHEMISTRY

NOTICE

Razole ,
09-11-2021.

To
The Principal
Government Degree College
Razole

Sir,

Sub: Government Degree College, Razole - Introduction of Certificate course in "WATER QUALITY ANALYSIS" - Proposal submitted for permission - Regarding.

I humbly submit that the Department of Chemistry proposes to conduct a Certificate course in " WATER QUALITY ANALYSIS" during 2021-22 keeping in view of the need of the students . A resolution has been taken in the Departmental Minutes book also to that effect a resolution made in the department.

Hence, I request you to permit us to conduct the above said course for the benefit of our students.

Thanking you sir

Yours faithfully,

9-11-2021

Incharge of the Chemistry Dept.
Govt. Degree College
RAZOLE - 533 242
Dr. BR. AmbedkarKonaseema D.

CERTIFICATE COURSE
GOVERNMENT DEGREE COLLEGE
RAZOLE
SYLLABUS FOR CERTIFICATE COURSE IN 2021-22
Water Quality analysis

Hours : 30

Unit-I : Water analysis -I

Water quality parameters: Physical parameters, chemical parameters, biological parameters, colour, turbidity, determination of TDS, determination of conductance, p^H value.

Unit -II: water analysis -II

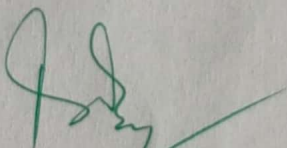
hardness of water: Formation of hard water, types of hard water, degree of hardness, units of hardness, Determination of hardness, disadvantages of hard water, domestic purposes, industrial purposes,


Unit -III: water analysis - III

Dissolved oxygen, Biological Oxygen Demand, Chemical Oxygen Demand, determination of dissolved oxygen by Winkler's method

Unit - IV: water analysis -IV

Determination of Chlorides by Argentometric method, determination of fluorides by SPADNS method, determination of Nitrate by Phenol Disulphonic method, determination of sulphate by gravimetric method


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OUTCOMES OF THE CERTIFICATE COURSE

WATER QUALITY ANALYSIS

OUTCOMES:

At the end of the course, the student attains the following outcomes

- He understands the importance of critical thinking in Water Quality analysis.
- He understands the concepts working knowledge of water quality characteristics of water sources
- He is able to get knowledge of collection procedures, Alkalinity levels, PH levels, Turbidity levels, Fluoride levels, Color, Taste and odor and microbiological testing results.
- He is able to describe the purpose and operation steps of key water treatment process.
- He is able to explain operation and maintenance procedures of equipment used in water treatment plants.

Committee Members:

S.No.	NAME OF THE FACULTY	Total number of hours taken
1	Sri CGSN RAJA KUMAR	30
2	Dr. Ch. China Satyanarayana	
3	Smt. Sk. Shahin	

Time Table:

Day (9 AM to 10 AM)	Name of the Lecturer
MON	CGSN RAJA KUMAR
WED	Dr. CH CHINA SATYANARAYANA
FRI	SHAIK SHAHIN

DEPARTMENT OF CHEMISTRY
CERTIFICATE COURSE 2021- 22
ENROLLMENT FORM

S.NO	Regd.no.	Name of the Student	Signature of the Student
1	201077110041	BATTULA PRIYANKA	B. Priyanka
2	201077110042	BAYYA R.PRIYA	B. Ratra priya
3	201077110043	CH.JYOTHSNA	Ch. Jyothsna
4	201077110045	GIDDI RESHMA	G. Reshma
5	201077110046	G.NIKHITHA	G. Nikhitha.
6	201077110047	G.VARSHITHA	G. Varshitha
7	201077110048	GUNTURU SRIVALLI	G. Srivalli
8	201077110050	K.V.S.D.G.A.SWAPANTHI	K. Swapanthi
9	201077110051	KAMPASETTI S.SWATHI	K. satya swathi
10	201077110060	MADHURA RENUKA	M. Renuka
11	201077110062	MATTAPARTHI SATHVIKA	M. Sathvika
12	201077110063	MOHAMMAD B.UNNISA	Md. Kashif U.
13	201077110064	NALLI SANGEETHA	N. Sangeetha
14	201077110065	NATRU RUPA SRI	N. Rupa Sri.
15	201077110066	NEETHIPUDI KALPANA	N. Kalpana
16	201077110067	PILLI MADHU MANASA	P. Madhu Manasa
17	201077110069	SAVARAPU SRIJA	S. Srija
18	201077110071	SETTIM JOHN BABU	S. John Babu
19	201077110072	THOTA MOUNIKA	T. Mounika
20	201077110073	UIKA RAJU	U. Raju.

DEPARTMENT OF CHEMISTRY
CERTIFICATE COURSE 2021- 22
Attandance Particulars

S.No.	Regd.No.	Name of the Student	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	201077110041	BATTULA PRIYANKA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
2	201077110042	BAYYA R.PRIYA X	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
3	201077110043	CH.JYOTHSNA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
4	201077110045	GIDDI RESHMA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
5	201077110046	G.NIKHITHA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
6	201077110047	G.VARSHITHA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
7	201077110048	GUNTURU SRIVALLI	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
8	201077110050	K.V.S.D.G.A.SWAPANTHI	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
9	201077110051	KAMPASETTI S.SWATHI	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
10	201077110060	MADHURA RENUKA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
11	201077110062	MATTAPARTHI SATHVIKA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
12	201077110063	MOHAMMAD B.UNNISA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
13	201077110064	NALLI SANGEETHA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
14	201077110065	NATRU RUPA SRI	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
15	201077110066	NEETHIPUDI KALPANA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
16	201077110067	PILLI MADHU MANASA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
17	201077110069	SAVARAPU SRIJA X	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
18	201077110071	SETTIM JOHN BABU	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
19	201077110072	THOTA MOUNIKA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
20	201077110073	UIKA RAJU	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
21	201077110075	VIPPARTHI SRAVANI X	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P

S.No.	Regd.No.	Name of the Student	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	201077110041	BATTULA PRIYANKA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
2	201077110042	BAYYA R.PRIYA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
3	201077110043	CH.JYOTHSNA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
4	201077110045	GIDDI RESHMA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
5	201077110046	G.NIKHITHA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
6	201077110047	G.VARSHITHA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
7	201077110048	GUNTURU SRIVALLI	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
8	201077110050	K.V.S.D.G.A.SWAPANTHI	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
9	201077110051	KAMPASETTI S.SWATHI	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
10	201077110060	MADHURA RENUKA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
11	201077110062	MATTAPARTHI SATHVIKA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
12	201077110063	MOHAMMAD B.UNNISA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
13	201077110064	NALLI SANGEETHA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
14	201077110065	NATRU RUPA SRI	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
15	201077110066	NEETHIPUDI KALPANA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
16	201077110067	PILLI MADHU MANASA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
17	201077110069	SAVARAPU SRIJA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
18	201077110071	SETTIM JOHN BABU	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
19	201077110072	THOTA MOUNIKA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
20	201077110073	UIKA RAJU	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
21	201077110075	VIPPARTHI SRAVANI	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P

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Dr. B. R. A. Konaseema Dist. A.P

Key

GOVERNMENT DEGREE COLLEGE - RAZOLE DEPARTMENT OF CHEMISTRY

Time: 45 min

Certificate Course

Max marks : 40

Answer all the following questions each question carries 2 marks

20 X 2 = 40 M

1. Alkalinity in water is expressed as milligrams per litre in terms equivalent to
a) $MgCO_3$ b) $*CaCO_3$ c) $Ca(OH)_2$ d) Na_2CO_3
2. Which among the following options correctly indicates the range of p^H value of ground water
a) 0.6 to 0.8 b) $*6$ to 8.5 c) 2 to 4.5 d) 11 to 15
3. What is the acceptable limit (in mg/L) of dissolved solids
a) 2000 b) 1000 c) $*500$ d) 250
4. In the determination of hardness of water, water is titrated against EDTA salt solution using EBT as indicator. What is the colour change at the end point of titration
a) $*wine$ to blue b) blue to green c) yellow to blue d) blue to yellow
5. According to WHO and Indian Standard for drinking Water Specification 1991 , the maximum permissible limit for fluoride in drinking water (mg/L)
a) 0.1 b) $*1.5$ c) 5.0 d) 10
6. Blue baby disease found in infants is due to excessive----- in drinking water
a) Colour b) Sulphates c) Carbonates d) $*Nitrates$
7. The permissible limit of total dissolved solids(TDS), in drinking water in the absence of alternate source
a) 500 mg/L b) 200 mg/L c) 100 mg/L d) $*2000$ mg/L
8. The acceptable limit for chlorides in mg/L in drinking water
a) 100 b) 500 c) $*250$ d) 1500
9. For drinking water in the absence of alternate source of water , the permissible limits for chloride and sulphate in (mg/L) respectively are
a) 250 , 200 b) $*1000, 400$ c) 200 , 250 d) 500, 1000
10. The maximum permissible limit of total dissolved solids (TDS) in drinking water in the absence of an alternate source in mg/L
a) 100 b) 200 c) 500 d) $*2000$
11. Temporary hardness in water is due to
a) Bi -nitrates of Ca^{+2}, Mg^{+2} b) $*Carbonates$ of Ca^{+2}, Mg^{+2} c) Sulphates of Ca^{+2}, Mg^{+2} d) Nitrates of Ca^{+2}, Mg^{+2}
12. The hardness is usually measured by the
a) $*Soap$ solution test b) Jar test c) Jackson turbidity meter d) Baylis turbidity meter
13. Zero hardness of water is achieved by
a) using lime soda process b) excess lime treatment c) $*Ion$ exchange method d) excess alum dosage
14. The permissible limit of turbidity of domestic water in ppm
a) $*5-10$ b) 1-5 c) 10-50 d) 10-30
15. What is the full form of NTU in context with turbidity
a) number of transfer unit b) neurological turbidity unit c) $*nephelometric$ turbidity unit d) network terminal unit
16. The amount of oxygen required to oxidise organic pollutants in water is known as --- COD -----
17. The full form of JTU --- Jackson Turbidity Unit ---
18. The permanent hardness caused by the presence of --- chlorides and sulphates of Ca^{+2}, Mg^{+2} ---
19. The amount of oxygen consumed by bacterial and chemical action in a chemical action in a closed sample of water maintained at $20^{\circ}C$ for five days is known as --- BOD ---
20. The amount chloride in a water sample is determined by --- Mohr's --- method

GOVERNMENT DEGREE COLLEGE - RAZOLE
DEPARTMENT OF CHEMISTRY

Time:45 min

Certificate Course

Max marks : 40

Answer all the following questions each question carries 2 marks

20 X 2 = 40 M

- Alkalinity in water is expressed as milligrams per litre in terms equivalent to
a) MgCO_3 b) CaCO_3 c) Ca(OH)_2 d) Na_2CO_3
- Which among the following options correctly indicates the range of p^{H} value of ground water
a) 0.6 to 0.8 b) 6 to 8.5 c) 2 to 4.5 d) 11 to 15
- What is the acceptable limit (in mg/L) of dissolved solids
a) 2000 b) 1000 c) 500 d) 250
- In the determination of hardness of water, water is titrated against EDTA salt solution using EBT as indicator. What is the colour change at the end point of titration
a) wine to blue b) blue to green c) yellow to blue d) blue to yellow
- According to WHO and Indian Standard for drinking Water Specification 1991 , the maximum permissible limit for fluoride in drinking water (mg/L)
a) 0.1 b) 1.5 c) 5.0 d) 10
- Blue baby disease found in infants is due to excessive----- in drinking water
a) Colour b) Sulphates c) Carbonates d) Nitrates
- The permissible limit of total dissolved solids(TDS),in drinking water in the absence of alternate source
a) 500 mg/L b) 200 mg/L c) 100 mg/L d) 2000 mg/L
- The acceptable limit for chlorides in mg/L in drinking water
a) 100 b) 500 c) 250 d) 1500
- For drinking water in the absence of alternate source of water , the permissible limits for chloride and sulphate in (mg/L)respectively are
a) 250 ,200 b) 1000, 400 c) 200 , 250 d) 500,1000
- The maximum permissible limit of total dissolved solids (TDS) in drinking water in the absence of an alternate source in mg/L
a) 100 b) 200 c) 500 d) 2000
- Temporary hardness in water is due to
a) Bi -nitrates of $\text{Ca}^{+2}, \text{Mg}^{+2}$ b) Carbonates of $\text{Ca}^{+2}, \text{Mg}^{+2}$ c) Sulphates of $\text{Ca}^{+2}, \text{Mg}^{+2}$ d) Nitrates of $\text{Ca}^{+2}, \text{Mg}^{+2}$
- The hardness is usually measured by the
a) Soap solution test b) Jar test c) Jackson turbidity meter d) Baylis turbidity meter
- Zero hardness of water is achieved by
a) using lime soda process b) excess lime treatment c) Ion exchange method d) excess alum dosage
- The permissible limit of turbidity of domestic water in ppm
a) 5-10 b) 1-5 c) 10-50 d) 10-30
- What is the full form of NTU in context with turbidity
a) number of transfer unit b) neurological turbidity unit c) nephelometric turbidity unit d) network terminal unit
- The amount of oxygen required to oxidise organic pollutants in water is known as -----
- The full form of JTU -----
- The permanent hardness caused by the presence of -----
- The amount of oxygen consumed by bacterial and chemical action in a chemical action in a closed sample of water maintained at 20°C for five days is known as -----
- The amount chloride in a water sample is determined by ----- method



GOVERNMENT DEGREE COLLEGE

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DEPARTMENT OF CHEMISTRY
CERTIFICATE COURSE 2021- 22
MARKS OBTAINED IN THE EXAMINATION

Max Marks : 40

S.NO	Regd.no.	Name of the Student	Marks obtained
1	201077110041	BATTULA PRIYANKA	38
2	201077110042	BAYYA R.PRIYA	30
3	201077110043	CH.JYOTHSNA	34
4	201077110045	GIDDI RESHMA	34
5	201077110046	G.NIKHITHA	32
6	201077110047	G.VARSHITHA	34
7	201077110048	GUNTURU SRIVALLI	20
8	201077110050	K.V.S.D.G.A.SWAPANTHI	30
9	201077110051	KAMPASETTI S.SWATHI	30
10	201077110060	MADHURA RENUKA	20
11	201077110062	MATTAPARTHI SATHVIKA	30
12	201077110063	MOHAMMAD B.UNNISA	34
13	201077110064	NALLI SANGEETHA	32
14	201077110065	NATRU RUPA SRI	26
15	201077110066	NEETHIPUDI KALPANA	24
16	201077110067	PILLI MADHU MANASA	32
17	201077110069	SAVARAPU SRIJA	38
18	201077110071	SETTIM JOHN BABU	38
19	201077110072	THOTA MOUNIKA	34
20	201077110073	UIKA RAJU	34



GOVERNMENT DEGREE COLLEGE

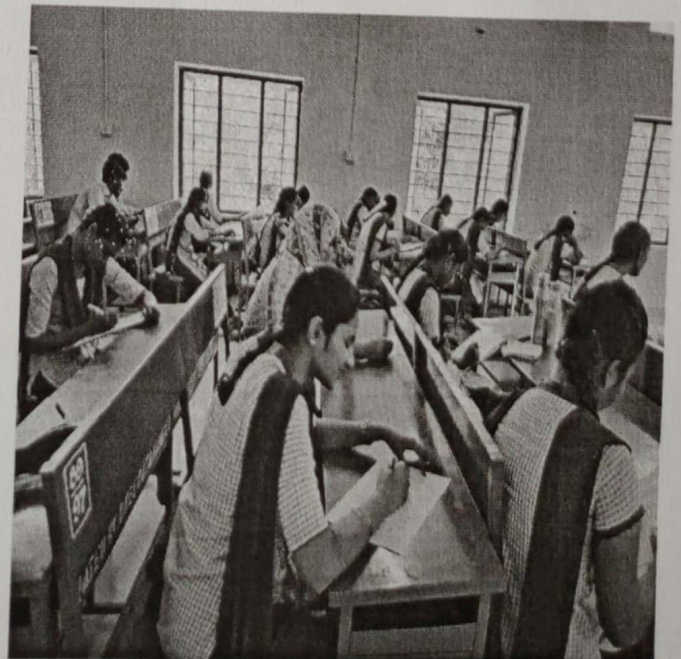
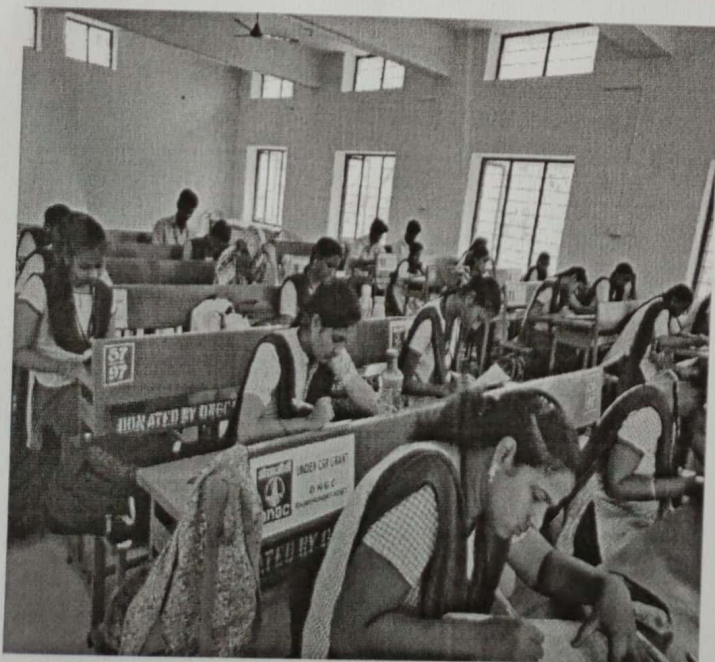
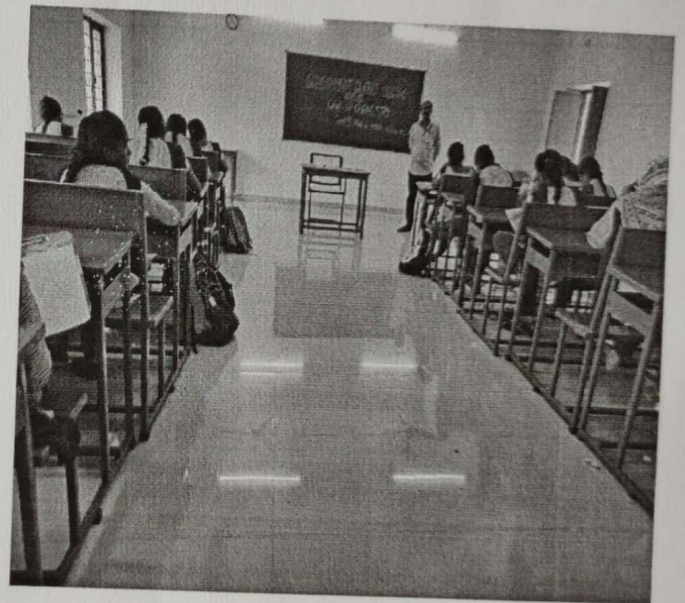
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DEPARTMENT OF CHEMISTRY
EVIDENCES OF EXAMINATION CONDUCTED FOR CERTIFICATE COURSE
"WATER QUALITY ANALYSIS"

02-02-2022





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DEPARTMENT OF CHEMISTRY
EVIDENCES OF LABORATORY WORK FOR CERTIFICATE COURSE
On "WATER QUALITY ANALYSIS"

