

**S.R.R&C.V.R Govt. Degree College**

**DEPARTMENT OF BIOCHEMISTRY**

**MEDICAL LAB TECHNOLOGY  
CERTIFICATE COURSE**

**YEAR 2019-20**



**OPEN TO ALL PROGRAMS**





S.R.R.&C.V.R Govt. Degree College (A), Vijayawada



*Department of Biochemistry*  
**Medical Lab Technology (MLT)**

To vocationalise education at the first-degree level, parallel utility-oriented certificate/diploma/advanced diploma courses have been introduced by UGC as Carrier Orientation Program (COP). The students can avail of these career-oriented courses and gain an extra qualification on graduating.

According to the University Grants Commission (UGC) regulations, a subject course that an institution proposes will be introduced in the existing three-degree programme by way of add-on skill-oriented subjects during the first, second and third year of education as **certificate/diploma/advanced diploma** courses, along with conventional degree programmes.

The certificate course in **medical lab technology** is add-on short-term specialization course of 6 months introduced by Department of biochemistry in 2005. This course trains a learner to help a doctor diagnose, detect, and treat diseases by collecting and testing samples and documenting the results of these tests for further analysis by the doctor.

Under the programme, each student would be awarded an additional certificate /diploma /advanced diploma in the 'add-on' course opted for. Students applying for college admissions after Class XII are also eligible to join the add-on/career-oriented courses, along with BA/ B.Com/ B.Sc./ (I, III and V semester), depending on the availability of seats in colleges which offer these courses.

Students who have passed the certificate course will be eligible for admission to the respective diploma course and those who passed diploma course are eligible for admission into advanced diploma in a progressive manner. This allows a student studying graduation to up skill and certifies them.

The **demand for certified MLTs** is growing with the rise in the number of hospitals and laboratories, which has been further stressed upon by the COVID-19 crisis. Completion of a **certificate course in MLT** allows a professional to work as a **phlebotomist** and can work as assistant to a medical professional.



**S.R.R.&C.V.R Govt. Degree College (A), Vijayawada**  
**Department of Biochemistry**



**COURSE DETAILSS**

**SALIENT FEATURES**

**Course duration:** 6 Months, 15<sup>th</sup> September to 15<sup>th</sup> March

(CMLT-6 Months, DMLT-6 Months, ADMLT-6 Months)

CMLT-Certificate Course in Medical Lab Technology

DMLT-Diploma in Medical Lab Technology

ADMLT- Advanced Diploma in Medical Lab Technology

**Eligibility:** 10+2 Science

**Objective:** Develop a pool of trained workforce, who can be employed by a diagnostic service provider to assist pathologist and microbiologists

**Medium of Instruction:** English

**Attendance:** 75% attendance is required to appear in the final examination.

Course credits- 2+4, Theory- 2, Practical-4, each credit has 12 hours of duration.

Theory- 36 hours, Practical- 60 hours.

**Note:** At the time of SEM end examinations the regular classes are conducted on Sundays & Holidays

Marks : Theory- 40 Marks, Practical 60 Marks

**Grading system:** Above 70% marks both in theory and practical A grade

60% to 69% B grade

50% to 59% C grade

35% to 49% D grade

**Certificate award:**

Certificate in medical lab technology is awarded to the candidates who successfully complete the requirements as prescribed by the Governing body, S.R.R.&C.V.R GDC (A), Vijayawada.



**S.R.R&C.V.R Govt. Degree College (A), Vijayawada**  
**Department of Biochemistry**



**Objectives:**

The course aims to produce middle level medical laboratory technology personnel with sound academic knowledge equipped with perfect technical skills and can face real life situation at the level they are aimed at. Interpret the results and explain underlying principles in each investigation. Prepare reagents required for routine and special investigations. Set up clinical laboratory in primary health center

They can explore a wide field of opportunity right after completion of their course of Medical Laboratory Technology. Clinical laboratory training plays a crucial role in the detection, diagnosis and treatment of disease. Medical laboratory technicians are trained to work under the supervision of a technologist to conduct routine diagnostic tests, as well as set up, clean and maintain medical laboratory equipment. They have careers at private hospitals, nursing homes and diagnostic centers..

**Career Opportunity/Course outcome:** Certificate in Medical Laboratory Technology program creates and fosters skilled health professionals in clinical laboratory science for diagnosis of diseases. Medical Laboratory Technology is generally concerned with diagnosis, treatment and prevention with use of pathological tests. As vital members of the health care team, Lab Technicians play a key role in collecting information to provide best care to the patients. Students who enroll for this program will be provided theoretical as well as practical knowledge of different clinical laboratory techniques



**S.R.R.&C.V.R Govt. Degree College (A), Vijayawada**  
**Department of Biochemistry**



From  
Sri R. B. Dikshatulu., M.A.,  
Principal (FAC),  
S.R.R.&C.V.R.Govt. Degree College,  
Vijayawada - 520004.

To  
The Controller Of Examinations,  
Acharya Nagarjuna University,  
Nagarjuna Nagar - 522510.

Lr Rc No 2/UGC Section /2003 / dated 23-11-2005

Sir

Sub:- S.R.R.&C.V.R.Govt. Degree College , Vijayawada – UGC Certificate  
Courses – schedule of proposed University Examinations - Reg.  
Ref:- Telephone call from Sri.T. Pamulu, Additional Controller of  
Examinations, ANU on 22-11-2005.

With reference to your telephone message on 22-11-2005, with the Principal,  
SRR & CVR Govt. Degree College, Vijayawada, I would like to represent the following few  
lines for your ready reference on the subject stated above.

(i) The UGC stipulated hours for each certificate course viz,

(a) Medical Diagnostics

(b) Herbal Medicinal Plants. &

(c) Mushroom Cultivation

are 30 credits. Each credit has 15 hours of duration i.e., 450 hours (300 hrs for  
theory + 150 hrs for practical classes). As such, we need 6 months time i.e., from 15<sup>th</sup> SEP'05  
to 15<sup>th</sup> MAR'06 for completion of both the theory and practical classes of each course.

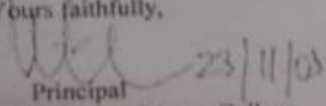
(ii) It is recommended and proposed that the schedule of University Examinations for the above  
Certificate courses be commenced from 20<sup>th</sup> April, 2006.

(iii) As we contacted Sri S.R.K. Prasad, the Principal, JKC College, Guntur who framed the  
Syllabi for the above certificate courses, we came to know that he had already submitted the  
Model question papers for each course to the Academic Section (Registrar's Office) of  
Acharya Nagarjuna University along with the syllabus.

While enclosing here with a copy of UGC Orders relating to these courses for your  
kind information and perusal, I request you to take necessary further action in the matter of ensuing  
examinations for the above certificate courses.

Encls:  
As said above.

Yours faithfully,

  
Principal  
SRR & CVR Govt. Degree College,  
Vijayawada.



**S.R.R.&C.V.R Govt. Degree College (A), Vijayawada**

**Department of Biochemistry**

**MEDICAL LAB TECHNOLOGY COURSE SYLLABUS**



**(COPMLT01)**

**CMLT (Certificate in Medical Lab Technology)**

**Unit – I**

**Introduction to Microbiology**

Contributions of Anton von leewenhook, Louis Pasteur, Robert Koch and Joseph Lister

Classification of medically important micro organisms – Virus, Bacteria and Fungi

**Unit – II**

**Microbial Techniques**

Microscopy types- simple, compound, bright field, dark field, phase contrast and fluorescent microscope

Principles, operation and applications of centrifuge, calorimeter, spectrophotometer

**Unit – III**

**Types of media**

Basal media-Nutrient broth, Glucose broth, Selective media, Enriched media, Anaerobic media

Sterilization and Disinfection

**Unit-IV**

**Biomolecules:**

Classification, properties and functions of carbohydrates, amino acids, proteins, lipids and Nucleic acids.

Basic concepts of Enzymes: Definition, classification of enzymes of diagnostic importance

**Unit-V**

**Metabolism:**

Basic concepts of carbohydrate metabolism – Digestion, absorption, metabolism, regulation of blood sugar (Glycolysis, TCA cycle, Glycogenesis, Glycogenolysis)

Basic concepts of proteins – Digestion, absorption of proteins, urea formation, creatinine

Basic concepts of lipids metabolism – Digestion and absorption of lipids, ketone body formation.



**S.R.R&C.V.R Govt. Degree College (A), Vijayawada**  
**Department of Biochemistry**



**(COPMLT01)**

CAREER ORIENTED PROGRAMME (COP)

**CMLT (Certificate in Medical Lab Technology)**

**Total marks: 40**

**Hours: 2h**

**SECTION A (6 X 4= 24 marks)**

Short Answer Type Questions, Answer any SIX Questions.

1. Pasteur effect
2. Light microscope
3. Bacterial growth curve
4. Lipids
5. Centrifuge
6. Urea cycle
7. Clinical pathology
8. Haemoglobin
9. Virus
10. Blood transfusion

**SECTION B (2×8= 16 marks)**

Long answer type questions, Answer any two questions

11. Give an account on different methods of Sterilization.
12. Describe the principle, and applications of colorimeter.
13. Give an account on digestion of carbohydrates, proteins and fats
14. Write in detail about different types of media used for cultivation of bacteria
15. Discuss about any two medically important fungi



**S.R.R.&C.V.R Govt. Degree College (A), Vijayawada**  
**Department of Biochemistry**  
**(COPMLT02)**



**DMLT (Diploma in Medical Lab Technology)**

**UNIT – I**

**Bacteriology**

Morphology, cultural characteristics, lab diagnostics of important pathogens

Gram -ve cocci- Neisseria (gonococcus)

Gram -ve bacilli - Coryne bacterium diptheriae, Mycobacterium tuberculosis, Mycobacterium leprae, Clostridium tetani, clostridium botulieum,

Gram +ve bacilli - Escherichia coli, Klebsiella, Salmonella, Vibrio cholerae,

Spirochaets -Treponenna pallidum

**Virology**

Classification, Generala properties, Cultivation of important pathogenic virus such as Measles, Mumps, Polio, Hepatitis, Rubella, HIV and influenza.

**UNIT-2**

**Mycology**

Study of medically imp Human mycoses- Dermatophytoses (Ringworm infections), Candidiasis, Aspergillosis.

**Parasitology**

Parasites in blood –Plasmodium species

Parasites in stool – Entamoeba histolytica

Parasites in Urine – Trichomonas vaginalis

**UNIT III**

**Immunology and serology**

Introduction, Antigens and Antibodies

Different types of Antigen and Antibody reactions, Agglutination, Precipitation, Complement fixation and Neutralization, Principle and method of ELISA test



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**UNIT IV**

**Pathology and Hematology**

Sputum examination, Semen analysis

Collection of blood, Coagulation of blood, Anticoagulants; Erythrocyte Sedimentation Rate

Blood cell count, Absolute eosinophil count; Coagulation tests



**S.R.R.&C.V.R Govt. Degree College (A), Vijayawada**  
**Department of Biochemistry**  
**(COPMLT02)**



CAREER ORIENTED PROGRAMME (COP)

**DMLT (Diploma in Medical Lab Technology)**

**Total marks: 40**

**Hours: 2h**

Short Answer Type Questions, Answer any SIX Questions.

(6 X 5 = 30 M)

1. Mycobacterium tuberculosis
2. Poliovirus
3. Candidiasis
4. Flatworms
5. Measles
6. Agglutination
7. Anticoagulants
8. Anemia
9. Ascaris lumbricoides
10. Collection of blood

SECTION B (4 X10 = 40 marks)

11. Describe the morphology and cultural characteristics of any two important pathogens.
12. Discuss about HIV virus
13. Write about morphology, life cycle, and lab diagnosis of plasmodium species.
14. Write about blood composition and functions.
15. Discuss about the Principle and applications of ELISA



**S.R.R.&C.V.R Govt. Degree College (A), Vijayawada**

***Department of Biochemistry***

**COPMLT03**



**ADMLT ( Advanced Diploma In Medical Lab Technology)**

## **UNIT-I**

### **General principles of diagnostics**

Microbiology-collection, transport and processing of clinical samples

General methods of laboratory diagnosis- cultural, biochemical serological and molecular methods

## **UNIT- II**

### **Hematology & Biochemistry**

Hemoglobin, Anemia, Leukemia

Blood banking – storage and processing of blood bags

Hypersensitivity, Autoimmune diseases

Basic concepts of Liver function tests, Total serum bilirubin, Vandenberg Test

Basic concepts of Kidney function tests

Blood Urea, Serum creatinine

## **UNIT- III**

### **Histopathology**

Materials and equipment used for Biopsy and Autopsy

Collection, preservation and labelling of samples

Fixation, processing of tissues, embedding, section cutting, staining and mounting, special stains

## **UNIT –IV**

### **Anatomy-1**

Digestive system

Respiratory system

Cardiovascular system

Urinary system



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**Unit –V**

**Anatomy-2**

Reproductive system

Endocrine system

Nervous system

**(COPMLT03)**

CAREER ORIENTED PROGRAMME (COP)

**ADMLT (Advanced Diploma in Medical Lab Technology)**

**Total marks: 40**

**Hours: 2h**

Short Answer Type Questions, Answer any SIX Questions.

(6 X 5 = 30 M)

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

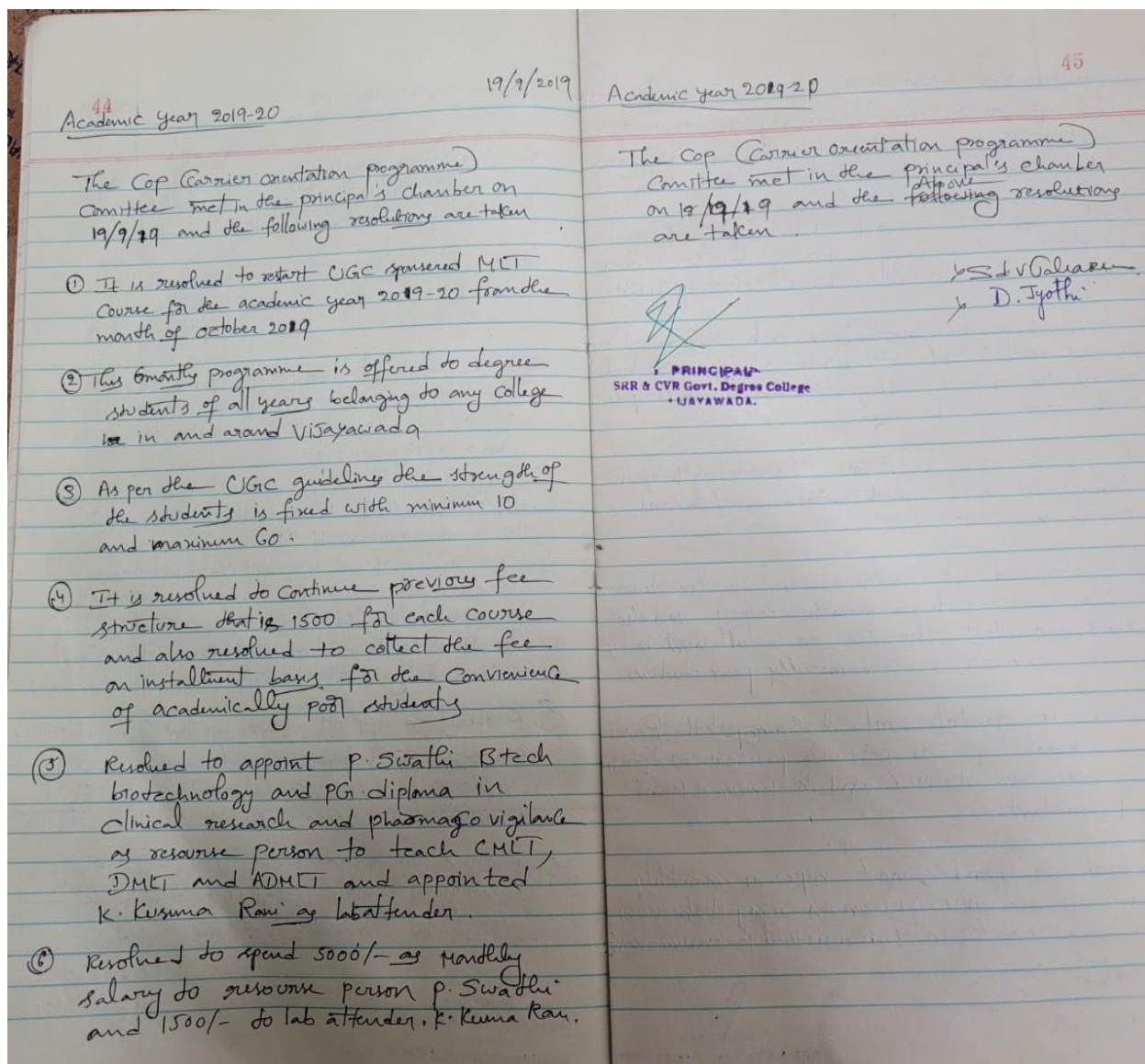
SECTION B (4 X10 = 40 marks)

- 11..
- 12.
13. .
- 14.
- 15.



YEAR 2019-2020

RESOLUTIONS IN MINUTES REGISTER





S.R.R & C.V.R Govt. Degree College (A), Vijayawada  
Department of Biochemistry



Enrolled list of students with marks achieved

CERTIFICATE COURSE IN MEDICAL LAB TECHNOLOGY  
2019-20

S.No	Reg No	Name of the Student	Theory	Practical	Grade	Total	Signature
1	Y19MLT174001	Akasupu Lashanya Bharathi	60	30	A	90	
2	02	Alluri Aruna	48	28	A	76	A Aruna
3	03	Annamala Triveni	57	28	A	85	A Triveni
4	04	Ambati Kavya Sri	37	28	B	65	A Kavya
5	05	Ala Arun Kumar	20	28		48	
6	06	Avula Anandha Raju	14	25		39	
7	07	Bandaru Bhargavi	47	30	A	77	
8	08	Bokinala Aaron Wesley Paul					
9	09	Bhandari Lushmitha	58	30	A	88	
10	10	Chintada Grace Mari	16	25		41	
11	11	Chinta Lakshmi Harika	16	25		41	
12	12	Chinta Bhavanjaya	52	25	A	77	
13	13	Chadalavada Ramyal Sri	22	30		52	
14	14	Eedurupaka Divya Kesthana	66	30	A	96	
15	15	Gunthuru Naga Vamsi	9	25		34	
16	16	Jituri Venkateswarlu	25	28	C	53	
17	17	Kathiraju Kinnara	18	25		37	
18	18	Kurupati Priya Krishna					
19	19	Kasinkota Satya Vathi	23	28	C	51	
20	20	Manipalli Anusha	28	25	C	53	
21	21	Merugu Preethi	40	28	B	68	
22	22	Moka Bhavya	7	27		34	
23	23	Mulampaka Tulasi	3	24		27	
24	24	Massipogu Ramesh	1	22		23	
25	25	Mohammad Afim	59	27	A	86	
26	26	Mohammad Younus	28	27	C	55	
27	27	N. Vamsi Lakshmana Phaniendra					
28	28	Pennumaka Jaya Lakshmi	54	29	A	83	
29	29	Pulivarthi Lakshmi	61	29	A	90	
30	30	Patri Sadhika	46	27	A	73	
31	31	Pallepogu Tejaswi	53	27	A	80	

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S.No	Reg No	Name of the Student	Theory	Practical	Grade	Total	Signature
32	Y19MLT174032	Palepu Ravi Teja	28	21	D	49	
33	33	Sabavathi Prudhvi Nayak					
34	34	Ameena Kousar	63	29	A	92	
35	35	Shaik Maneesha	65	29	A	94	
36	36	Jhamada Bharathi	46	27	A	73	
37	37	Jhatha Durga Amal Prasad					
38	38	Jhinuvedula Teja	15	21		36	
39	39	Jadikamalla Lakshmi Jennifer	35	24	C	59	
40	40	Jatapudi Gowthami	52	20	A	72	
41	41	Veeranki Veda Sri Gowd	37	22	C	59	

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# S.R.R & C.V.R Govt. Degree College (A), Vijayawada

## Department of Biochemistry



DIPLOMA IN MEDICAL LAB TECHNOLOGY				2019-2020			
S.No	Reg. No.	Name of the Student	Theory	Practical	Grade	Total	Signature
1	Y18MLT174002	A. Lakshya Shilakshmi Vasantha	35	28	B	63	
	03	Balikesetti Teja Naga Sai	60	28	A	88	
	04	Budiputi Haritha	37	25	B	62	
	05	Burugge Viswas	45	30	A	75	
	06	Chaganti Pali Harish					
	07	Gogulamudi Surya Prakash	48	30	A	78	G. Surya Prakash
	08	Gondeti Sai Krishna Srilatha	34	28	B	62	
	09	Gunnampati Rohit Nanda	25	25	C	50	G. Rohit Nanda
	10	Gunturu Bharu Durga Prasad	32	28	B	60	
	12	Kakumanu Sebastian	36	28	B	64	K. Sebastian 18-10-21
	13	Kanchapogu Snehittha	40	28	B	68	
	15	Kodali Harshitha	35	28	B	63	
	16	Maganti Jayashri	37	28	B	65	
	18	Masimukkala Prasanth	28	20	D	48	
	19	Matta Navcen	37	22	B	59	M. Navcen
	20	Murthyala Vychnavi	49	25	A	74	H.V. Vychnavi 20-10-21
	22	Moka Lokesh	46	23	B	69	
	23	Mopidevi Sowmya	48	27	A	75	M. Sowmya
	24	Mudavath Vamsi Naik	32	24	C	56	
	25	Munipalli Ravi Teja	38	22	B	60	
	26	Nakka Abhigna	44	28	A	72	
	27	Nakka Srinivasulu	35	15	C	50	
	28	Periseti Revanth	45	23	B	68	P. Revanth
	29	Pathurreddypalli Govardhan	24	22	D	46	
	31	Puppala Lalitha	31	28	C	59	
	32	Puppala Lavanya	27	28	C	55	P. Lavanya 20-10-21
	33	Sanam Keerthi	43	27	A	70	
	34	T. Venkata Sai Krishna Manikanta	31	26	C	57	
	35	Vankadavath Srinu Naik	31	25	C	56	V. Srinu Naik 11/11/21
	36	Vallamanti Pravalika	28	28	C	56	
	37	Yerra Surendra	15	23		38	
Total 37							
Absent 0							

ADVANCE DIPLOMA IN MEDICAL LAB TECHNOLOGY				2019-2020			
S.No	Reg. No.	Name of the Student	Theory	Practical	Grade	Total	Signature
1	Y17MLT174001	Manthana Ratna Kumari	52	28	A	80	
2	02	M. Julasi Surya Sindhu	60	26	A	86	
3	03	Nakka Meghana	47	27	A	74	
4	06	Dareli Manasa	43	26	B	69	
5	07	Palle Lavanya	42	24	B	66	
6	08	Pasi Aruna Kumari	43	22	B	65	
7	09	Dussa Sai Sree	41	26	B	67	
8	10	Nagularancho Anusha	44	25	B	69	
9	11	Bathapu Kasi Viswanadh	39	20	C	59	
10	13	Kodidala Sivan Kumar	35	19	C	54	
11	14	Gaddam Manoj Kumar	49	24	A	73	
12	15	Palapongu Narendra	54	26	A	80	
13	18	Annamsetti Subrahmanyam	33	23	C	56	A. Subrahmanyam
14	22	Chukkala Bhargavi	44	21	B	65	
15	23	Chinthala Swapna Kumari	46	27	A	73	Ch. Swapna Kumari
16	24	P. Naga Tirupathamma					
17	26	Anuru Pravan Chander					
18	27	Gogulamudi Naga Lakshmi	22	22		44	
19	Y17MLT174028	M. Sai Leela Sri					M. Sai Leela Sri 28/11/2021



**S.R.R&C.V.R Govt. Degree College (A), Vijayawada**  
**Department of Biochemistry**



S.NO	COURSE	NUMBER OF STUDENTS ENROLLED	NUMBER OF STUDENTS ABSENT	NUMBER OF STUDENTS PASSED	PASS PERCENTAGE
1	CMLT	41	05	36	100
2	DMLT	37	01	36	
3	ADMLT	19	05	14	
		97	11	86	

**REPORT FOR THE YEAR 2018-19**



# KRISHNA UNIVERSITY

001505

MACHILIPATNAM - 521 001, Krishna District, Andhra Pradesh, India

U.G.C. Sponsored  
Career Oriented Programmes

## MEMORANDUM OF MARKS

(0018)

October-2020

06/02/2021


Name : KURUPATI PRIYA KRISHNA

Reg. No.: Y19MLT174018

Course : Certificate Course In MEDICAL LAB TECHNOLOGY/MEDICAL  
DIAGNOSTICS

College : S. R. R. & C. V. R. GOVT. COLLEGE  
VIJAYAWADA

S.No.	Subject	Maximum Marks	Minimum Marks	Marks Secured
1.	Theory : MEDICAL LAB TECHNOLOGY/ MEDICAL DIAGNOSTICS	70	23	A
2.	Practical : MEDICAL LAB TECHNOLOGY/ MEDICAL DIAGNOSTICS	30	12	A
Total Marks		100	35	
Result :	Fail	Grade :		

  
PRINCIPAL (FAC)



Controller of Examinations

SRR & CVR GOVT. DEGREE COLLEGE

Grade (Autonomous) - 'A', 60% - 69% - 'B', 50% - 59% - 'C', 35% - 49% - 'D'

Machilipatnam, Vijayawada - 520 001  
Certificate - One year : 30 credits or 450 hours ; Diploma - Two years : 60 credits or 900 hours ;  
Advanced Diploma - Three years : 90 credits or 1350 hours.

# S.R.R. & C.V.R. GOVT. DEGREE COLLEGE (AUTONOMOUS), VIJAYAWADA-4

NAAC B+ (III CYCLE WITH CGPA : 2.60)-ESTD.: 1937

An Autonomous College in the Jurisdiction of KRISHNA UNIVERSITY, Machilipatnam, A.P.



## U.G.C. SPONCERED CAREER ORIENTED PROGRAMMES MEMORANDUM OF MARKS

MARCH 2022

**Name :** AKARAPU CHAITANYA BHARATHI

**Reg.No:** Y19MLT174001

**Course :** Diploma in Medical Lab Technology

S.NO.	Subject	Maximum Marks	Minimum Marks	Marks Secured
1	Theory : Medical Lab Technology	70	23	69
2	Practical : Medical Lab Technology	30	12	30
<b>TOTAL MARKS</b>		<b>100</b>	<b>35</b>	<b>99</b>
<b>RESULT :</b>	<b>Pass</b>	<b>GRADE :</b>	<b>A</b>	

**Grades : Above 70% - 'A', 60% - 69% - 'B', 50% - 59% - 'C', 35% - 49% - 'D'.**

0021372

Date : 31 DEC 2022

*[Signature]*  
Principal

*[Signature]*  
Controller of Examinations