Shri Shivaji Education Society Amravati's

Science College, Nagpur

Department Of Physics

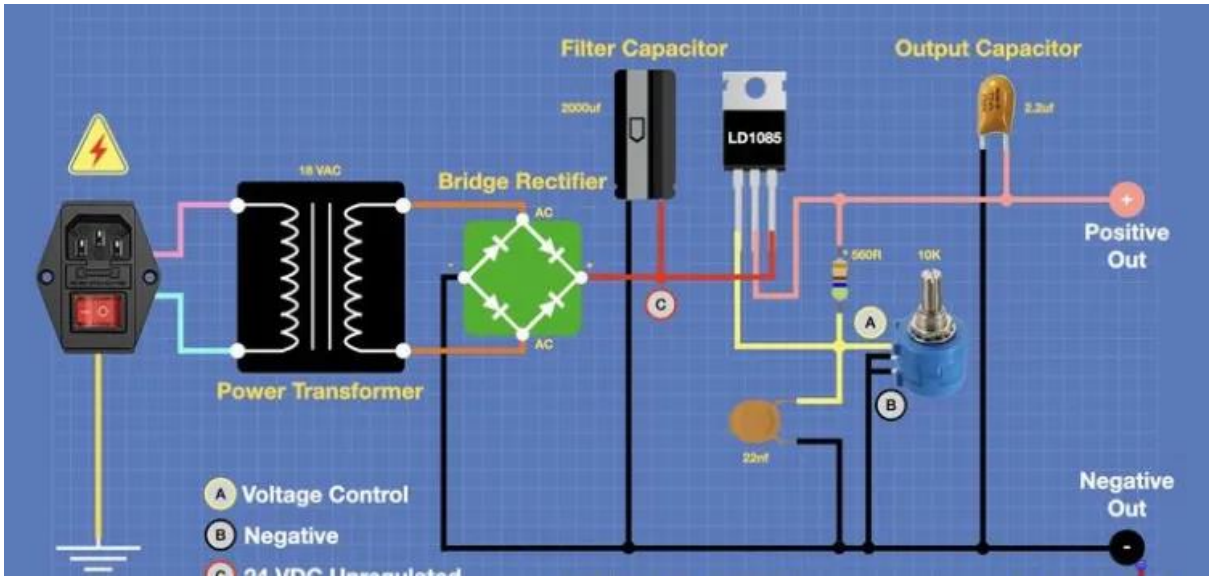
Session 2023-24

Free Certificate Course for College Students

Certificate Course - Fundamentals of Electronic D.C. Power Supply

Duration – 30 Hours (10 Weeks)

Course starts from 05 Jan 2024 to 09 Mar 2024



Course Coordinator – Mr. Bhupendra T. Kumbhare

Shri Shivaji Education Society Amaravati's

Science College Congress Nagar, Nagpur

Department of Physics

Course Report on Add-on Course

"Fundamentals of Electronic D.C. Power Supply"

Undergraduate Course for Physics Students

Duration: ***05 Jan 2024 to 09 Mar 2024***

Total Students: 54

This 10-week add-on course provided B.Sc. Physics students with a comprehensive understanding of the fundamentals of electronic DC power supplies. The course was conducted by Mr. B.T. Kumbhare, Assistant Professor, Department of Physics SSES Amt's Science College Congress Nagar Nagpur. Total 54 Students of B.Sc. I, II and III, year Physics were enrolled for the course.

The course covered theoretical principles, design techniques, and practical applications, emphasizing hands-on experience and real-world applications. The students were evaluated through MCQ based final exam of 80 marks and practical lab sessions of 20 marks. All 54 students successfully completed the course, with a majority achieving high grades. Several students demonstrated exceptional skills in practical applications and innovative project designs. Students worked on individual and group projects that involved designing and building functional DC power supplies. Practical sessions included hands-on experience with circuit design and testing with oscilloscopes and multimeters.

The 10-week Fundamentals of Electronic DC Power Supply course was a valuable addition to the undergraduate physics curriculum, equipping students with essential knowledge and skills in electronics. The course successfully combined theoretical foundations with practical applications, preparing the students for further studies and careers in electronics and related fields.

Action Taken: To understand the fundamentals of D.C. power supply physics department conducted the add-on course. Total 54 students registered for this course. Students participated actively in this course and made D.C. power supply.

Mr. B. T. Kumbhare

Course Coordinator

Shri Shivaji Education Society Amaravati's

Science College Congress Nagar, Nagpur

Department of Physics

Course Report on Add-on Course

"Fundamentals of Electronic D.C. Power Supply"

Undergraduate Course for Physics Students

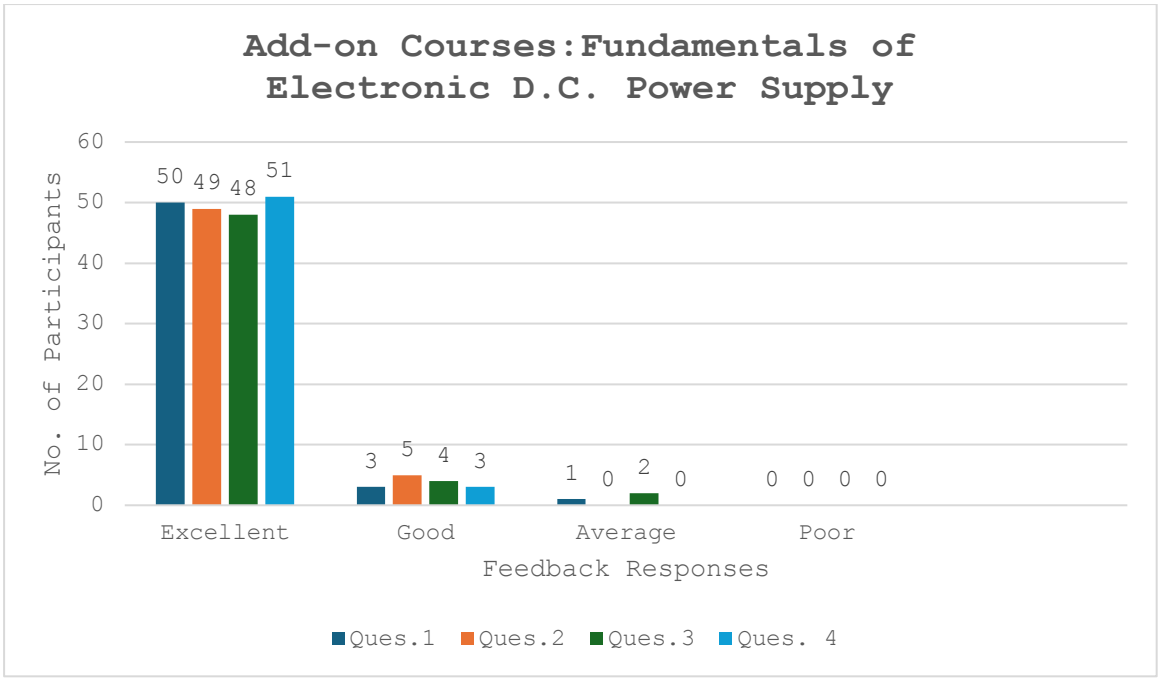
Duration: 07/01/2024 to *09/03/2024*

Name of Course Coordinator: Mr. B. T. Kumbhare

Course Feedback Form

Name : _____

1) How would you rate the overall quality of the course content?
   ☐ Excellent
   ☐Good
   ☐Average
   ☐Poor
2) How relevant was the course content to your professional or academic goals?
   ☐Excellent
   ☐Good
   ☐Average
   ☐Poor
3) How would you rate the hands-on lab sessions and practical exercises?
   ☐Excellent
   ☐Good
   ☐Average
   ☐Poor
4) How would you rate the availability and quality of resources (e.g., textbooks, online materials)?
   ☐Excellent
   ☐Good
   ☐Average
   ☐Poor


Add-on Courses:Fundamentals of Electronic D.C. Power Supply
No. of Participants
60
50
40
30
20
10
0
50 49 48 51
3 5 4 3
1 0 2 0
0 0 0 0
Excellent
Good
Average
Poor
Feedback Responses
Ques.1
Ques.2
Ques.3
Ques. 4

To,
The Principal
SSES Amt's Science College,
Congress Nagar, Nagpur-12

Subject: For permission to conduct the add on courses in Physics during the session 2023-2024

Respected Sir,

This is to request you that, the teachers of Physics department have prepared the syllabus and modules of the 30 hours certificate courses for the session 2023-2024.

The details of the course module, syllabus and time table is submitted here with.

Hence please permit to run the add on courses and oblige me.

Thanking you

Yours sincerely

Dr. S. W. Anwane
Professor and Head
Department of Physics
Shri Shivaji Education Society Amravati's
SCIENCE COLLEGE
Congress Nagar, Nagpur.

Permitted

Shri Shivaji Education Society Amravati 's

Science College

Congress Nagar,Nagpur

Department Of Physics

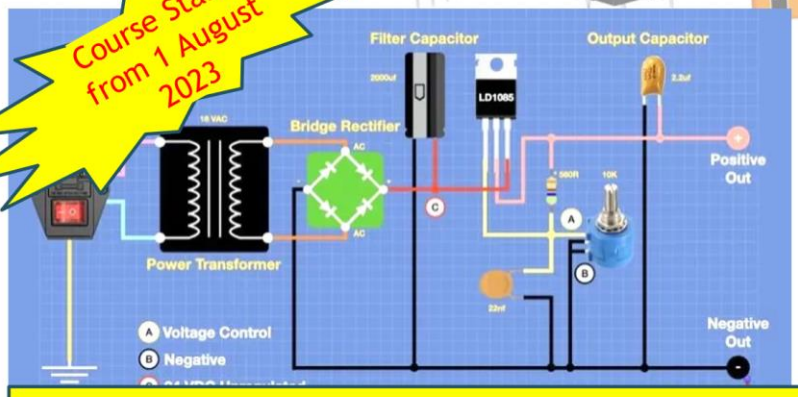
Certificate Course Fundamentals of Electronic D.C. Power Supply

Free Certificate Course
for UG Students
Course Duration : 30 hours
(spread over 10 weeks, 3 hours per week)

CourseObjectives

- To provide a comprehensiveunderstandingof D.C. power supply design and operation
- To developpracticalskillsin buildingandtestingD.C. powersupplies
- To introducestudentsto varioustypesof D.C. powersuppliesandtheirapplications
- To enablestudentsto troubleshootand maintainD.C. powersupplies
- To preparestudentsfor advancedstudiesor careersin electronicsand powersupply engineering

Course Starts from 1 August 2023



Process of Registration: Early birds Will be admitted

Last Date of Registration:26/12/2023
For Registration Contact: Mr. B. T. Kumbhare (Coordinator)

Shri Shivaji Education Society Amravati's

Science College

Congress Nagar, Nagpur

Department of Physics

Add-on Certificate Course (2023-2024)

Certificate Course: Fundamentals of Electronic D.C. Power Supply

Notice

Date : 16/12/2023

The Department of Physics is conducting Add-on **Certificate Course on Fundamentals of Electronic D.C. Power Supply** for the session 2023-24. Interesting students of B.Sc. Part I, Part II & Part III should register themself in early and contact to the Course Coordinator Mr. B. T. Kumbhare immediately.

Course	Admission Fees
Fundamentals of Electronic D.C. Power Supply	Free

Mr. B. T. Kumbhare

Course Coordinator

Shri Shivaji Education Society Amravati's

Science College

Congress Nagar, Nagpur

Department of Physics

Course Module and Syllabus

Certificate Course: Fundamentals of Electronic D.C. Power Supply

Course Coordinator: Mr. Bhupendra T. Kumbhare

Course description:

This certificate course provides a comprehensive introduction to the principles and concepts of electronic DC power supply systems. Students will gain a deep understanding of the fundamental principles, components, and circuit analysis techniques used in DC power supply design and development.

Course Objectives:

- To provide a comprehensive understanding of D.C. power supply design and operation.
- To develop practical skills in building and testing D.C. power supplies.
- To introduce students to various types of D.C. power supplies and their applications.
- To enable students to troubleshoot and maintain D.C. power supplies.
- To prepare students for advanced studies or careers in electronics and power supply engineering.

Instructional Strategies: Theory class, Practical, Video clips, Models etc.

Evaluation Strategies: Oral discussions and Final MCQ examination.

Course Outline:

- Introduction to DC Power Supply Systems
- Components and Circuit Analysis
- Design and Development of DC Power Supply Systems
- Safety Considerations and Troubleshooting Techniques

Course Outcomes:

By the end of the course, students will be able to:

- Understand the basic principles and components of D.C. power supplies.

- ❖ Design and construct different types of D.C. power supplies.
- ❖ Perform testing and troubleshooting on D.C. power supplies.
- ❖ Apply knowledge of D.C. power supplies in practical and industrial applications.

Present and document their design and testing process effectively.

Duration of course: Ten Weeks (30 hours)

The Structure of Syllabus and system of evaluation -

Course	**Theory Papers and Practical**	**Total Marks**	
		Theory	**Practical**
Certificate Course in Fundamentals of Electronic D.C. Power Supply	Theory paper- Fundamentals of Electronic D.C. Power Supply * Theory examination will be of MCQ pattern having 60 or 80 questions each with equal marks.	80	20
	* Practical examination will be based on performance evaluation in the laboratory	100	

Course Coordinator
(B.T. Kumbhare)

Internal Quality Assurance Cell
(IQAC)
S. S. E. S. A. Science College
Congress Nagar, Nagpur.

Principal
S. S. E. S. Amravati's
Science College, Nagpur.

SYLLABUS

Certificate course (10 weeks, 3 hours per week**)**

(Certificate Course: Fundamentals of Electronic D.C. Power Supply)

Theory –

Unit-I: Introduction to D.C. Power Supplies and Basic Components and Operation

- Overview of power supplies
- Types of power supplies (linear vs. switching)
- Applications of D.C. power supplies
- Transformers, rectifiers, filters
- Voltage regulation
- Load and line regulation

Unit-II: Linear Power Supplies and Switching Power Supplies

- Series and shunt regulators
- Design and operation of linear regulators
- Advantages and disadvantages
- Basic principles of switching regulators
- Buck, boost, and buck-boost converters
- Design and operation of switching regulators

Unit-III: Advanced Topics in Power Supply Design, and Maintenance and Applications of D.C. Power Supplies

- Thermal management
- EMI/EMC considerations
- Efficiency improvements
- D.C. power supplies in consumer electronics
- Industrial applications
- Renewable energy systems

Practical –

Power Supply Design and Simulation

- Design considerations
- Simulation tools and techniques
- Hands-on simulation exercises

Practical Construction and Testing

- Building a basic D.C. power supply
- Testing procedures and equipment
- Safety considerations

Troubleshooting and Maintenance

- Common issues and diagnostics
- Troubleshooting techniques
- Preventive maintenance

Distribution of marks:-

Simulation tools and techniques	(05 Marks)
Building a basic D.C. power supply	(05 Marks)
Common issues and diagnostics	(05 Marks)
Preventive maintenance	(05 Marks)

Week-wise teaching plan:

WEEK	HRS.	SYLLABUS
Week 1		**Introduction to D.C. Power Supplies**
	1	Overview of power supplies
	1	Types of power supplies (linear vs. switching)
	1	Applications of D.C. power supplies
Week 2		**Basic Components and Operation**
	1	Transformers, rectifiers, filters
	1	Voltage regulation
	1	Load and line regulation
Week 3		**Linear Power Supplies**
	1	Series and shunt regulators
	1	Design and operation of linear regulators
	1	Advantages and disadvantages
Week 4		**Switching Power Supplies**
	1	Basic principles of switching regulators
	1	Buck, boost, and buck-boost converters
	1	Design and operation of switching regulators
Week 5		**Power Supply Design and Simulation**
	1	Design considerations
	1	Simulation tools and techniques
	1	Hands-on simulation exercises
Week 6		**Practical Construction and Testing**
	1	Building a basic D.C. power supply
	1	Testing procedures and equipment
	1	Safety considerations
Week 7		**Advanced Topics in Power Supply Design**
	1	Thermal management
	1	EMI/EMC considerations
	1	Efficiency improvements
Week 8		**Troubleshooting and Maintenance**
	1	Common issues and diagnostics
	1	Troubleshooting techniques
	1	Preventive maintenance
Week 9		**Applications of D.C. Power Supplies**
	1	D.C. power supplies in consumer electronics
	1	Industrial applications
	1	Renewable energy systems
Week 10		**Designing and building a D.C. power supply**
	1	Individual or group projects on designing and building a D.C. power supply
	1	Testing and validation of projects
	1	Presentation of project work

Shri Shivaji Education Society Amravati's

Science College

Congress Nagar, Nagpur

Department of Physics

Add-on Certificate Course (2023-2024)

Certificate Course: Fundamentals of Electronic D.C. Power Supply

TIME TABLE

Days	Time	
	Theory Classes	**Practical Classes**
Friday	**BTK (C6) 4.00 PM – 5.00 PM**	
Saturday	**BTK (C6) 4.00 PM – 5.00 PM**	**BTK (C6) 5.00 PM – 6.00 PM**

Mr. B. T. Kumbhare

Course Coordinator

Shri Shivaji Education Society Amravati's

Science College, Congress Nagar Nagpur

Department of Physics

Skill Based Certificate course

Title: "Certificate Course: Fundamentals of Electronic D.C. Power Supply"

Registration List of Students

2023-2024

Sr. No.	Name of Students
1	AGARKAR PRANJAL VIJAY
2	BAGDE SHRADDHA BABAN
3	BALODIYA RITIKA VISHNU
4	BHAGAT KRUNAL GAJANAN
5	BHAGAT SANJIVANI SAGAR
6	BILKAR AMISHA SITARAM
7	CHAUDHARY MUNESH RAVINDRASINGH
8	DAF PRADNYA CHANDRAKANTJI
9	DHABEKAR SWATI FATTU
10	JAUNJAL GARGI DILIP
11	KANOJE KHUSHI SANJAY
12	KARKI SRUSHTI SUBHASH
13	KAWALE GAYTRI VINOD
14	KAYARKAR JANHVI DHIRENDRA
15	KENE JANVI SUBHASHRAO
16	LAKDE SHREYASH MAHADEO
17	LAKHE PRANAV BHUPESH
18	MARBATE SANSKRUTI RAJENDRA
19	MASRAM NIKITA SITARAM
20	MEENA RUCHI MAHENDRA KUMAR
21	MESHRAM NIKHITA RAVIKANT
22	MOTWANI VARUN DOLAT
23	MOUNDEKAR VINKU MANIK

24	NARWADE SARTHAK ARUNRAO
25	PAROCHE PALAK SATISH
26	PATLE SONALI SURESH
27	PAUNIKAR YASHWANT RAJU
28	PIMPLE MANYA GANESH
29	PITALEY SHRIVATSA PRASHANT
30	POPERE GARGI VINAYAK
31	RAUT DISHA VIJAY
32	SANGOLE AKANSHA SUBHASH
33	SHENDE CHAITRALI GANESHRAO
34	SHRIVAS PRATHAM SANJIV
35	WASE RUSHIKESH SHUBHAKAR
36	YADAV JAYSHREE PRAKASH
37	YADAV SAPNA JAIKRISHNA
38	BALAPURE PARI GAJANAN
39	BANSOD NIKHIL MILIND
40	BHIWGADE SHRINAY YOGESH
41	DHADSE VAISHNAVI VIJAY
42	DHAKATE SAKSHI PRAMOD
43	JADHAV AASTHA SANJU
44	JOSHI ARTI SUBHASH
45	KHAPRE MUSKAN PRAKASH
46	LODHIKAR ANJALI NANESHWAR
47	MESHRAM NISHANT DUSHYANT
48	MESHRAM ROSHNI SHRIHARI
49	MISAR KHUSHI MANOJ
50	MISHRA MAHEK PRAMOD
51	PATEL LOKESH SHRINIWAS
52	PATHAK MUSKAN VINAY
53	SATHAWANE SHUBHAM RAJENDRA
54	SHARMA SNEHA RANJAY KUMAR

Shri Shivaji EducationSociety Amaravati's

Science College,Congress Nagar, Nagpur

Certificate Course: Fundamentals of Electronic D.C. Power Supply (10 Week)

Theory Class Attendance Sheet

2023-24

Sr. No	Students Full Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Total
1	AGARKAR PRANJAL VIJAY	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	29
2	BAGDE SHRADDHA BABAN	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	29
3	BALODIYA RITIKA VISHNU	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	29
4	BHAGAT KRUNAL GAJANAN	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	28
5	BHAGAT SANJIVANI SAGAR	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	29
6	BILKAR AMISHA SITARAM	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	28
7	CHAUDHARY MUNESH RAVINDRASINGH	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	28
8	DAF PRADNYA CHANDRAKANTJI	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	28
9	DHABEKAR SWATI FATTU	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	29
10	JAUNJAL GARGI DILIP	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30
11	KANOJE KHUSHI SANJAY	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	29
12	KARKI SRUSHTI SUBHASH	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	28
13	KAWALE GAYTRI VINOD	P	A	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	28
14	KAYARKAR JANHVI DHIRENDRA	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	29
15	KENE JANVI SUBHASHRAO	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	29
16	LAKDE SHREYASH MAHADEO	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	28
17	LAKHE PRANAV BHUPESH	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	29
18	MARBATE SANSKRUTI RAJENDRA	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	28
19	MASRAM NIKITA SITARAM	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	A	P	P	P	P	P	P	P	27
20	MEENA RUCHI MAHENDRA KUMAR	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	29

Course Coordinator
Mr. B. T. Kumbhare

21	MESHRAM NIKHITA RAVIKANT	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	28
22	MOTWANI VARUN DOLAT	P	P	P	P	P	A	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	28
23	MOUNDEKAR VINKU MANIK	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	28
24	NARWADE SARTHAK ARUNRAO	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	29
25	PAROCHE PALAK SATISH	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	29
26	PATLE SONALI SURESH	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	29
27	PAUNIKAR YASHWANT RAJU	P	P	P	P	A	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	28
28	PIMPLE MANYA GANESH	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30
29	PITALEY SHRIVATSA PRASHANT	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	29
30	POPERE GARGI VINAYAK	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30
31	RAUT DISHA VIJAY	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30
32	SANGOLE AKANSHA SUBHASH	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	29
33	SHENDE CHAITRALI GANESHRAO	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	A	P	P	P	P	28
34	SHRIVAS PRATHAM SANJIV	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	A	P	P	P	28
35	WASE RUSHIKESH SHUBHAKAR	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	29
36	YADAV JAYSHREE PRAKASH	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	A	P	P	P	P	28
37	YADAV SAPNA JAIKRISHNA	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	29
38	BALAPURE PARI GAJANAN	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	29
39	BANSOD NIKHIL MILIND	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	A	P	P	P	P	28
40	BHIWGADE SHRINAY YOGESH	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	28
41	DHADSE VAISHNAVI VIJAY	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	29
42	DHAKATE SAKSHI PRAMOD	P	P	P	P	P	P	P	P	A	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	28
43	JADHAV AASTHA SANJU	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30
44	JOSHI ARTI SUBHASH	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	28
45	KHAPRE MUSKAN PRAKASH	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	28
46	LODHIKAR ANJALI NANESHWAR	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30
47	MESHRAM NISHANT DUSHYANT	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	28

48	MESHRAM ROSHNI SHRIHARI	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	28
49	MISAR KHUSHI MANOJ	A	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	28
50	MISHRA MAHEK PRAMOD	P	P	A	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	27
51	PATEL LOKESH SHRINIWAS	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	29
52	PATHAK MUSKAN VINAY	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	29
53	SATHAWANE SHUBHAM RAJENDRA	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	27
54	SHARMA SNEHA RANJAY KUMAR	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	A	P	P	P	28

Mr. B. T. Kumbhare
Course Coordinator
Department of Physics

Shri Shivaji Education Society Amravati's

Science College

Congress Nagar, Nagpur

Department of Physics

Add-on Certificate Course Examination (2023-2024)

Certificate Course: Fundamentals of Electronic D.C. Power Supply

NOTICE

Date: 15/03/2024

All the registered students of add-on Course on **Fundamentals of Electronic D.C. Power Supply** under Department of Physics for the session 2023-24 are hereby informed that the theory examination is to be scheduled on 20/03/2024 (Wednesday) at 10:30 am to 11:30 am in Physics Laboratory at our college centre. All Students should be present in the laboratory before 10 mins. of scheduled time of examination.

Mr. B. T. Kumbhare
Course Coordinator
Department of Physics

Shri Shivaji Education Society Amravati's

Science College, Congress Nagar Nagpur

Department of Physics

Skill Based Certificate Course

Title: "Certificate Course: Fundamentals of Electronic D.C. Power Supply"

Theory Exam Attendance Sheet 2023-24

Course Coordinator: Mr. Bhupendra T. Kumbhare

Sr. No.	Name of Students	Sign
1	AGARKAR PRANJAL VIJAY	
2	BAGDE SHRADDHA BABAN	
3	BALODIYA RITIKA VISHNU	
4	BHAGAT KRUNAL GAJANAN	
5	BHAGAT SANJIVANI SAGAR	
6	BILKAR AMISHA SITARAM	
7	CHAUDHARY MUNESH RAVINDRASINGH	
8	DAF PRADNYA CHANDRAKANTJI	
9	DHABEKAR SWATI FATTU	
10	JAUNJAL GARGI DILIP	
11	KANOJE KHUSHI SANJAY	
12	KARKI SRUSHTI SUBHASH	
13	KAWALE GAYTRI VINOD	
14	KAYARKAR JANHVI DHIRENDRA	
15	KENE JANVI SUBHASHRAO	
16	LAKDE SHREYASH MAHADEO	
17	LAKHE PRANAV BHUPESH	
18	MARBATE SANSKRUTI RAJENDRA	
19	MASRAM NIKITA SITARAM	
20	MEENA RUCHI MAHENDRA KUMAR	

21	MESHRAM NIKHITA RAVIKANT	
22	MOTWANI VARUN DOLAT	
23	MOUNDEKAR VINKU MANIK	
24	NARWADE SARTHAK ARUNRAO	
25	PAROCHE PALAK SATISH	
26	PATLE SONALI SURESH	
27	PAUNIKAR YASHWANT RAJU	
28	PIMPLE MANYA GANESH	
29	PITALEY SHRIVATSA PRASHANT	
30	POPERE GARGI VINAYAK	
31	RAUT DISHA VIJAY	
32	SANGOLE AKANSHA SUBHASH	
33	SHENDE CHAITRALI GANESHRAO	
34	SHRIVAS PRATHAM SANJIV	
35	WASE RUSHIKESH SHUBHAKAR	
36	YADAV JAYSHREE PRAKASH	
37	YADAV SAPNA JAIKRISHNA	
38	BALAPURE PARI GAJANAN	
39	BANSOD NIKHIL MILIND	
40	BHIWGADE SHRINAY YOGESH	
41	DHADSE VAISHNAVI VIJAY	
42	DHAKATE SAKSHI PRAMOD	
43	JADHAV AASTHA SANJU	
44	JOSHI ARTI SUBHASH	
45	KHAPRE MUSKAN PRAKASH	
46	LODHIKAR ANJALI NANESHWAR	
47	MESHRAM NISHANT DUSHYANT	
48	MESHRAM ROSHNI SHRIHARI	
49	MISAR KHUSHI MANOJ	
50	MISHRA MAHEK PRAMOD	
51	PATEL LOKESH SHRINIWAS	
52	PATHAK MUSKAN VINAY	

53	SATHAWANE SHUBHAM RAJENDRA	
54	SHARMA SNEHA RANJAY KUMAR	

Sign of Invigilator

Science College Congress Nagar, Nagpur

Department of Physics

Add-on Certificate Corse on Fundamentals of Electronic D.C. Power Supply

THEORY EXAM

Date: 20/03/2024 **Max. Time: 1 Hour**

Max. Marks: 80 **Marks Obtained:**

Student Name: ----------

Note: i) All questions are compulsory and carry equal marks

ii) Tick the correct option

Sign. of Invigilator

---

1. What is the primary function of a DC power supply?

a) To convert AC to AC

b) To convert DC to DC

c) To convert AC to DC

d) To regulate voltage

2. Which type of power supply is commonly used in electronic devices?

a) AC power supply

b) DC power supply

c) Both AC and DC

d) None of the above

3. What is the output of a DC power supply?

a) Alternating Current (AC)

b) Direct Current (DC)

c) Both AC and DC

d) None of the above

4. Which component is used to rectify AC voltage in a DC power supply?

a) Transformer

b) Rectifier

c) Filter

d) Regulator

5. What is the purpose of a filter in a DC power supply?

a) To regulate voltage

b) To limit current

c) To remove ripples and noise

d) To convert AC to DC

6. Which type of DC power supply uses a transformer to step down the voltage?

a) Linear power supply

b) Switching power supply

c) SMPS

d) Step-down power supply

7. What is the advantage of a switching power supply over a linear power supply?

a) Higher efficiency

b) Lower cost

c) Smaller size

d) All of the above

8. Which safety feature is essential in a DC power supply?

a) Grounding

b) Insulation

c) Shielding

d) All of the above

9. What is the purpose of a voltage regulator in a DC power supply?

a) To regulate current

b) To regulate voltage

c) To filter noise

d) To store energy

10. Which type of DC power supply is commonly used in computers?

a) Linear power supply

b) Switching power supply

c) SMPS

d) DC-DC converter

11. What is the input of a DC power supply?

a) AC voltage

b) DC voltage

c) Both AC and DC

d) None of the above

12. Which component is used to store energy in a DC power supply?

a) Capacitor

b) Inductor

c) Resistor

d) Transformer

13. What is the purpose of a surge protector in a DC power supply?

a) To regulate voltage

b) To limit current

c) To protect against surges

d) To filter noise

14. Which type of DC power supply uses a high-frequency transformer?

a) Linear power supply

b) Switching power supply

c) SMPS

d) DC-DC converter

15. What is the advantage of a DC power supply over an AC power supply?

a) Higher efficiency

b) Lower cost

c) Smaller size

d) Constant voltage output

16. Which component is used to regulate voltage in a DC power supply?

a) Transformer

b) Rectifier

c) Filter

d) Regulator

17. What is the purpose of a short-circuit protector in a DC power supply?

a) To regulate voltage

b) To limit current

c) To protect against short circuits

d) To filter noise

18. Which type of DC power supply is commonly used in electronic devices?

a) Linear power supply

b) Switching power supply

c) SMPS

d) DC-DC converter

19. What is the output voltage of a DC power supply?

a) AC voltage

b) DC voltage

c) Both AC and DC

d) None of the above

20. Which safety feature is used to prevent electrical shock in a DC power supply?

a) Grounding

b) Insulation

c) Shielding

d) All of the above

21. What is the primary function of a rectifier in a DC power supply?

a) To regulate voltage

b) To limit current

c) To convert AC to DC

d) To filter noise

22. Which type of rectifier is commonly used in DC power supplies?

a) Half-wave rectifier

b) Full-wave rectifier

c) Bridge rectifier

d) Center-tapped rectifier

23. What is the purpose of a transformer in a DC power supply?

a) To regulate voltage

b) To limit current

c) To step up or step-down voltage

d) To filter noise

24. Which component is used to filter out ripples and noise in a DC power supply?

a) Capacitor

b) Inductor

c) Resistor

d) Diode

25. What is the purpose of a voltage regulator in a DC power supply?

a) To regulate current

b) To regulate voltage

c) To filter noise

d) To store energy

26. Which type of voltage regulator is commonly used in DC power supplies?

a) Linear voltage regulator

b) Switching voltage regulator

c) SCR voltage regulator

d) Triac voltage regulator

27. What is the purpose of a capacitor in a DC power supply?

a) To regulate voltage

b) To limit current

c) To filter noise

d) To store energy

28. Which component is used to limit current in a DC power supply?

a) Resistor

b) Capacitor

c) Inductor

d) Fuse

29. What is the purpose of a diode in a DC power supply?

a) To regulate voltage

b) To limit current

c) To rectify AC voltage

d) To filter noise

30. Which type of diode is commonly used in DC power supplies?

a) Zener diode

b) Schottky diode

c) LED diode

d) Rectifier diode

31. What is the purpose of a resistor in a DC power supply?

a) To regulate voltage

b) To limit current

c) To filter noise

d) To divide voltage

32. Which component is used to store energy in a DC power supply?

a) Capacitor

b) Inductor

c) Resistor

d) Transformer

33. What is the purpose of an inductor in a DC power supply?

a) To regulate voltage

b) To limit current

c) To filter noise

d) To store energy

34. Which type of inductor is commonly used in DC power supplies?

a) Choke inductor

b) Toroidal inductor

c) Ferrite inductor

d) Air-core inductor

35. What is the purpose of a fuse in a DC power supply?

a) To regulate voltage

b) To limit current

c) To protect against overvoltage

d) To protect against overcurrent

36. Which component is used to protect against electrical shock in a DC power supply?

a) Grounding

b) Insulation

c) Shielding

d) All of the above

37. What is the purpose of a heat sink in a DC power supply?

a) To regulate voltage

b) To limit current

c) To dissipate heat

d) To filter noise

38. Which type of heat sink is commonly used in DC power supplies?

a) Active heat sink

b) Passive heat sink

c) Liquid heat sink

d) Air heat sink

39. What is the purpose of a transformer in a DC power supply?

a) To step up or step-down voltage

b) To regulate voltage

c) To limit current

d) To isolate input and output

40. Which type of DC power supply is commonly used in electronic devices?

a) Series regulator

b) Shunt regulator

c) Switching regulator

d) Linear regulator

Answer: d) Linear regulator

Answer Key

1. Answer: c) To convert AC to DC
2. Answer: b) DC power supply
3. Answer: b) Direct Current (DC)
4. Answer: b) Rectifier
5. Answer: c) To remove ripples and noise
6. Answer: a) Linear power supply
7. Answer: d) All of the above
8. Answer: d) All of the above
9. Answer: b) To regulate voltage
10. Answer: c) SMPS
11. Answer: a) AC voltage
12. Answer: a) Capacitor
13. Answer: c) To protect against surges
14. Answer: c) SMPS
15. Answer: d) Constant voltage output
16. Answer: d) Regulator
17. Answer: c) To protect against short circuits
18. Answer: b) Switching power supply
19. Answer: b) DC voltage
20. Answer: d) All of the above
21. Answer: c) To convert AC to DC
22. Answer: c) Bridge rectifier
23. Answer: c) To step up or step down voltage
24. Answer: a) Capacitor
25. Answer: b) To regulate voltage
26. Answer: a) Linear voltage regulator
27. Answer: d) To store energy
28. Answer: d) Fuse
29. Answer: c) To rectify AC voltage
30. Answer: d) Rectifier diode
31. Answer: d) To divide voltage
32. Answer: a) Capacitor
33. Answer: c) To filter noise
34. Answer: a) Choke inductor
35. Answer: d) To protect against overcurrent
36. Answer: d) All of the above
37. Answer: c) To dissipate heat
38. Answer: b) Passive heat sink
39. Answer: a) To step up or step-down voltage
40. Answer: d) Linear regulator

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Add-on Course

Course Exam Name: Certificate Course in Fundamentals of electronics
D. C. Power Supply

Name of Student:

.....

Roll No.: | | | | **Session: 2023-24**

Test Date: 20/03/2024 | **Max. Marks: 80**

Invigilator Signature | **Obtained Marks:** | |

INSTRUCTIONS FOR FILLING THE SHEET

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4. Circles should be darkened completely and properly.
5. Cutting and erasing on this sheet is not allowed.
6. Do not use any stray marks on the sheet.
7. Do not use marker or white fluid to hide the mark.

WRONG METHODS CORRECT METHOD

	A	B	C	D		A	B	C	D		A	B	C	D		A	B	C	D		A	B	C	D
1	○	○	○	○	11	○	○	○	○	21	○	○	○	○	31	○	○	○	○	41	○	○	○	○
2	○	○	○	○	12	○	○	○	○	22	○	○	○	○	32	○	○	○	○	42	○	○	○	○
3	○	○	○	○	13	○	○	○	○	23	○	○	○	○	33	○	○	○	○	43	○	○	○	○
4	○	○	○	○	14	○	○	○	○	24	○	○	○	○	34	○	○	○	○	44	○	○	○	○
5	○	○	○	○	15	○	○	○	○	25	○	○	○	○	35	○	○	○	○	45	○	○	○	○
6	○	○	○	○	16	○	○	○	○	26	○	○	○	○	36	○	○	○	○	46	○	○	○	○
7	○	○	○	○	17	○	○	○	○	27	○	○	○	○	37	○	○	○	○	47	○	○	○	○
8	○	○	○	○	18	○	○	○	○	28	○	○	○	○	38	○	○	○	○	48	○	○	○	○
9	○	○	○	○	19	○	○	○	○	29	○	○	○	○	39	○	○	○	○	49	○	○	○	○
10	○	○	○	○	20	○	○	○	○	30	○	○	○	○	40	○	○	○	○	50	○	○	○	○

Shri Shivaji Education Society Amravati's

Science College, Congress Nagar Nagpur

Department of Physics

2023-2024

Add-on course Examination

Title: "Certificate Course: Fundamentals of Electronic D.C. Power Supply"

Course Coordinator: Mr. Bhupendra T. Kumbhare

DATE: **Total Marks: 100**

STATEMENT OF MARKS

Sr. No.	Name of Students	Theory Marks (80M)	Practical Marks (20M)	Total (100M)	Grade
1	Agarkar Pranjal Vijay	60	20	80	A
2	Bagde Shraddha Baban	64	20	84	A
3	Balodiya Ritika Vishnu	70	20	90	A+
4	Bhagat Krunal Gajanan	64	18	82	A
5	Bhagat Sanjivani Sagar	66	20	86	A+
6	Bilkar Amisha Sitaram	74	20	94	A+
7	Chaudhary Munesh Ravindrasingh	58	20	78	A
8	Daf Pradnya Chandrakantji	62	18	80	A
9	Dhabekar Swati Fattu	64	20	84	A
10	Jaunjal Gargi Dilip	74	20	94	A+
11	Kanoje Khushi Sanjay	72	20	92	A+
12	Karki Srushti Subhash	76	18	94	A+
13	Kawale Gaytri Vinod	78	16	94	A+
14	Kayarkar Janhvi Dhirendra	66	18	84	A
15	Kene Janvi Subhashrao	64	20	84	A
16	Lakde Shreyash Mahadeo	58	20	78	A

17	Lakhe Pranav Bhupesh	54	20	74	B+
18	Marbate Sanskruti Rajendra	74	18	92	A+
19	Masram Nikita Sitaram	64	16	80	A
20	Meena Ruchi Mahendra Kumar	72	18	90	A+
21	Meshram Nikhita Ravikant	78	16	94	A+
22	Motwani Varun Dolat	62	20	82	A
23	Moundekar Vinku Manik	58	20	78	A
24	Narwade Sarthak Arunrao	60	18	78	A
25	Paroche Palak Satish	70	16	86	A+
26	Patle Sonali Suresh	74	20	94	A+
27	Paunikar Yashwant Raju	72	18	90	A+
28	Pimple Manya Ganesh	64	16	80	A
29	Pitaley Shrivatsa Prashant	58	20	78	A
30	Popere Gargi Vinayak	60	20	80	A
31	Raut Disha Vijay	70	20	90	A+
32	Sangole Akansha Subhash	76	20	96	A+
33	Shende Chaitrali Ganeshrao	78	20	98	A+
34	Shrivas Pratham Sanjiv	66	16	82	A
35	Wase Rushikesh Shubhakar	54	18	72	B+
36	Yadav Jayshree Prakash	66	20	86	A+
37	Yadav Sapna Jaikrishna	68	16	84	A
38	Balapure Pari Gajanan	74	18	92	A+
39	Bansod Nikhil Milind	70	16	86	A+
40	Bhiwgade Shrinay Yogesh	60	18	78	A
41	Dhadse Vaishnavi Vijay	62	20	82	A
42	Dhakate Sakshi Pramod	72	20	92	A+
43	Jadhav Aastha Sanju	74	20	94	A+
44	Joshi Arti Subhash	60	20	80	A
45	Khapre Muskan Prakash	68	20	88	A+
46	Lodhikar Anjali Naneshwar	70	20	90	A+
47	Meshram Nishant Dushyant	74	20	94	A+
48	Meshram Roshni Shrihari	70	20	90	A+

49	Misar Khushi Manoj	62	20	82	A
50	Mishra Mahek Pramod	60	20	80	A
51	Patel Lokesh Shriniwas	72	18	90	A+
52	Pathak Muskan Vinay	70	18	88	A+
53	Sathawane Shubham Rajendra	64	18	82	A
54	Sharma Sneha Ranjay Kumar	78	18	96	A+

Mr. B. T. Kumbhare
Course Coordinator
Department of Physics

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Add-on Course

Course Exam Name: Certificate Course in Fundamentals of electronics
D. C. Power Supply

Name of Student: Agarkar Pranjal Vijay

Roll No.: 0 0 1 **Session: 2023-24**

Test Date: 20/03/2024 **Max. Marks: 80**

Invigilator Signature **Obtained Marks:** 60

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7. Do not use marker or white fluid to hide the mark.

WRONG METHODS ⊗ ◉ ◍ ✓ CORRECT METHOD ○ ○ ○ ●

	A	B	C	D
1	○	○	●	○
2	○	●	○	○
3	○	●	○	○
4	○	●	○	○
5	○	○	●	○
6	●	○	○	○
7	○	○	○	●
8	○	○	○	●
9	○	●	○	○
10	○	○	●	○
11	●	○	○	○
12	●	○	○	○
13	○	○	●	○
14	○	○	●	○
15	○	○	●	○
16	○	○	●	○
17	○	○	●	○
18	○	●	○	○
19	○	●	○	○
20	○	○	○	●
21	○	○	●	○
22	○	○	●	○
23	○	○	●	○
24	●	○	○	○
25	○	●	○	○
26	○	○	○	●
27	○	○	○	●
28	○	○	○	●
29	○	○	○	●
30	○	○	○	●
31	○	○	○	●
32	●	○	○	○
33	○	○	●	○
34	●	○	○	○
35	○	○	○	●
36	○	○	●	○
37	○	○	●	○
38	○	●	○	○
39	●	○	○	○
40	○	○	○	●
41	○	○	○	○
42	○	○	○	○
43	○	○	○	○
44	○	○	○	○
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48	○	○	○	○
49	○	○	○	○
50	○	○	○	○

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Add-on Course

Course Exam Name: Certificate Course in Fundamentals of electronics
D. C. Power Supply

Name of Student: Lakhe Pranav Bhupesh

Roll No.: 0 1 7 **Session: 2023-24**

Test Date: 20/03/2024 **Max. Marks: 80**

Invigilator Signature **Obtained Marks:** 54

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7. Do not use marker or white fluid to hide the mark.

WRONG METHODS ⊗ ◉ ✓ CORRECT METHOD ○ ○ ○ ●

	A	B	C	D
1	○	○	●	○
2	○	●	○	○
3	○	●	○	○
4	○	●	○	○
5	○	○	●	○
6	○	○	●	○
7	○	○	○	●
8	○	○	○	●
9	○	●	○	○
10	○	○	●	○
11	○	●	○	○
12	●	○	○	○
13	○	○	●	○
14	○	○	●	○
15	○	○	○	●
16	○	○	●	○
17	○	●	○	○
18	○	○	●	○
19	○	●	○	○
20	○	○	○	●
21	●	○	○	○
22	●	○	○	○
23	●	○	○	○
24	●	○	○	○
25	○	○	●	○
26	○	○	○	●
27	○	○	●	○
28	○	○	●	○
29	○	○	○	●
30	○	○	○	●
31	○	○	○	●
32	●	○	○	○
33	○	○	●	○
34	●	○	○	○
35	○	○	○	●
36	○	○	●	○
37	○	○	●	○
38	○	●	○	○
39	●	○	○	○
40	○	○	○	●
41	○	○	○	○
42	○	○	○	○
43	○	○	○	○
44	○	○	○	○
45	○	○	○	○
46	○	○	○	○
47	○	○	○	○
48	○	○	○	○
49	○	○	○	○
50	○	○	○	○

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Mr. B. T. Kumbhare
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