

“Education for Knowledge, Science and Culture”

Dr Bapuji Salunkhe

VIVEKANAND COLLEGE (AUTONOMOUS),

KOLHAPUR

DEPARTMENT OF BIOTECHNOLOGY,

2019-2020



BIOTECH

“INSTRUMENTATION COURSE IN

LIFE SCIENCES”

(Course File)

VIVEKANAND COLLEGE (EMPOWERED AUTONOMOUS), KOLHAPUR

DEPARTMENT OF BIOTECHNOLOGY

ADD - ON COURSE (2019-20)

"VAD - 1611 INSTRUMENTATION COURSE IN LIFE SCIENCES"

Notice

All the students of B. Sc are hereby informend that Department of Biotechnology, Vivekanand College, Kolhapur is conducting Add-on course (2019-20) "VAD - 1611 INSTRUMENTATION COURSE IN LIFE SCIENCES". Interested students are requested to enroll themselves till **20/08/2019**. The seats are limited and students will be admitted on first come first serve basis.


Co-ordinator
CO-ORDINATOR
ADD-ON COURSE
DEPARTMENT OF BIOTECHNOLOGY
VIVEKANAND COLLEGE, KOLHAPUR
(EMPOWERED AUTONOMOUS)




Heads
HEAD
DEPARTMENT OF BIOTECHNOLOGY (ENTIRE)
VIVEKANAND COLLEGE, KOLHAPUR
(EMPOWERED AUTONOMOUS)



"Education for Knowledge, Science and Culture"

Shikshan Maharishi Dr Bapuji Salunkhe



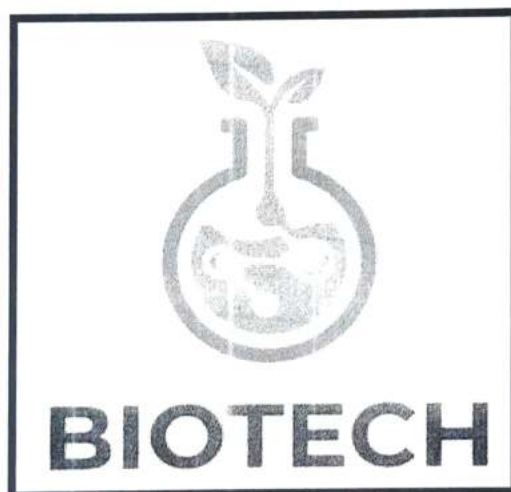
VIVEKANAND COLLEGE, KOLHAPUR

(AUTONOMOUS)

DEPARTMENT OF BIOTECHNOLOGY

Add On Course-2019-20

"VAD 1611 Instrumentation course in Life Sciences"



The course offers practical knowledge for various instruments in Life Science which helps them in their research career also helps to grab a position in various sectors like;

- Life science instrumentation manufacturers, suppliers, and providers
- Pharmacy & biotech companies and CROs
- Academic institutions and private research institutions
- Environmental testing laboratories
- Food and beverage testing centers
- Hospitals and diagnostic centers
- Service laboratories

VIVEKANAND COLLEGE (AUTONOMOUS), KOLHAPUR

DEPARTMENT OF BIOTECHNOLOGY

Teaching and Non-Teaching Faculty for

“VAD -1611 INSTRUMENTATION COURSE IN LIFE SCIENCES”

Sr No.	Name	Post
1	Mr. A.L.Upadhye	Co-ordinator
2	Mr. S.G.Kulkarni	Staff
3	Ms .S.H.Nadaf	Staff
4	Ms. V.N.More	Staff
5	Ms. M.D.Ulape	Staff
6	Ms. P.D.Patil	Staff
7	Ms. A.P.Jadhav	Staff
8	Mr. V.C.Buchade	Peon



BIOTECH

DEPARTMENT OF BIOTECHNOLOGY,
VIVEKANAND COLLEGE (AUTONOMOUS), KOLHAPUR
“Instrumentation Course in Life Sciences”

Unit I

General instruments: Principle, working & application

Digital Weighing Balance, pH meter, Centrifuge, Refrigerator, Deep Freezer, Autopipetter, Water bath, Dry Bath, Thermometer, Mini Spinner, Vortex Mixer, Magnetic Stirrer

Unit II

Instruments for Biochemistry: Principle, working & application

Colorimeter, Spectrophotometer, BOD/COD Apparatus & BOD incubator, Specific gravity bottle, Chromatography [TLC, Paper Chromatography, Ion Exchange Chromatography, Gel Filtration Chromatography], Dialysis, Refractometer.

Unit III

Instruments for Microbiology: Principle, working & application

Autoclave, Hot Air Oven Incubator, Microscope, Fermentor, Shaker Incubator, Distillation Unit, Hemocytometer, Replica Unit, Immunoassay Techniques, Colony Counter.

Unit IV

Instruments for Molecular Biology: Principle, working & application

Gel Electrophoresis, PAGE, Gel Doc system, Electro blotting, UV Transilluminator, PCR, Cooling Centrifuge, Liquid Nitrogen Homogenization, Cryopreservation.

Unit V

Instruments for Plant Tissue Culture: Principle, working & application

Hot Plate, Laminar Air Flow, Rotatory Shaker, Cell Counter, pH Meter, Culture Room

Practical Syllabus for "VAD -1611 INSTRUMENTATION COURSE IN LIFE SCIENCES"

Sr · N o.	Name of the Practical	Practical 14	Work Load
1	Demonstration of Dialysis	1	APJ
2	Demonstration of Chromatography(Ion Exchange and Gel Filtration)	2	SHN
3	Demonstration of Chromatography(TLC and Paper)	2	SHN
4	Demonstration of Spectrophotometer	1	SGK
5	Demonstration of PCR (Thermo cycler)	1	MDU
6	Demonstration of Laminar Air Flow	1	MDU
7	Determination of Standard Plate Count	1	VNM
8	Demonstration of Flame Photometer	1	SGK
9	Micrometry (Determination of Size of Microscopic Objects)	1	APJ/SGK
10	Demonstration of Visualization and estimation of DNA (Gel electrophoresis, Gel Documentation, U.V Transilluminator)	3	ALU
11	Demonstration of Plant Tissue Culture technique (aseptic inoculation)	2	PDP
12	Demonstration of Plant Tissue Culture technique (Surface sterilization)	2	PDP
13	Homogenization By Liquid Nitrogen demonstration	1	ALU
14	Demonstration of all general instruments required in Life sciences	1	VNM
Total Practicals			20

Note1: Practical duration will be of 1 hour

Codes Used:

1. **SGK** : Mr. S.G.Kulkarni
2. **SHN**: Ms .S.H.Nadaf
3. **ALU**: Mr. A.L.Upadhye
4. **VNM**: Ms. V.N.More
5. **MDU**: Ms. Ni.D.Ulape
6. **PDP** : Ms. P.D.Patil
7. **APJ**: Ms. A.P.Jadhav



“INSTRUMENTATION COURSE IN LIFE SCIENCES”

The course offers practical knowledge for various instruments in Life Science which helps them in their research career also helps to grab a position in various sectors like;

- Life science instrumentation manufacturers, suppliers, and providers
- Pharmacy & biotech companies and CROs
- Academic institutions and private research institutions
- Environmental testing laboratories
- Food and beverage testing centers
- Hospitals and diagnostic centers
- Service laboratories

Instrument wise scope:

- **Cell counting**
 - Research institutions
 - Hospitals and diagnostic laboratories
 - Pharmaceutical and biotechnology companies
 - Other end users (food and beverage companies, CROs, and environmental testing companies)

- **Centrifuges**
 - Hospitals
 - Biotechnology and pharmaceutical companies
 - Academic and research institutes

- **Chromatography**
 - Pharmaceutical companies and CROs
 - Biotechnology and biopharmaceutical companies
 - Academics research institutions
 - Agriculture and food industry
 - Environmental testing
 - Other end users (government agencies, hospitals & clinics, cosmetic industry, and forensic laboratories)

- **Electrophoresis**
 - Academic and research institutions
 - Hospitals and diagnostic centers
 - Pharmaceutical and biotechnology companies
 - Research organizations

- **Flow Cytometry**
 - Pharmaceutical and biotechnology companies
 - Medical Schools and academic institutions
 - Research institutions
 - Clinical testing labs

- **Immunoassay**
 - Hospitals
 - Clinical laboratories
 - Blood bank
 - Pharmaceutical companies, CROs, and biotechnology companies
 - Other end users (physicians, home health agencies, nursing homes, and ambulatory surgical centers)

- **Microscopy**
 - Academic institutes
 - Industries
 - Other end users (government research institutions and private laboratories)

27	SHINDE DISHA SAMBHAJI	Patil	Patil	Patil	Patil	Patil	Patil	Patil
28	SHINTRE SNEHA ANIL	Shintre	Shintre	Shintre	Shintre	Shintre	Shintre	Shintre
29	SUTAR SHEJAL PRAKASH	Patil	Patil	Patil	Patil	Patil	Patil	Patil
30	TAMBOLI YUNUS YASIN	Yunus	Yunus	Yunus	Yunus	Yunus	Yunus	Yunus
31	ABHISHEK PATIL	Patil	Patil	Patil	Patil	Patil	Patil	Patil
32	PANDAV VINITA							
33	PATIL GAURI DEVBA	Patil	Patil	Patil	Patil	Patil	Patil	Patil
34	KSHITIJA KHARADE							
35	SHEKH NIMRAH SHAKIL	Shakil	Shakil	Shakil	Shakil	Shakil	Shakil	Shakil
36	YASH SANDESH BARAPATRE							
37	PRANAV SHRIRAM DATAR							
38	MANKAR IFAT ASIF							
39	CHAITRALI SHINDE	Shinde	Shinde	Shinde	Shinde	Shinde	Shinde	Shinde
40	ROHAN RAKSHEKHAR MANVEL							

Sushant S. Patil
 Piyad B. Suryawanshi

~~Patil~~ ~~Patil~~ ~~Patil~~ ~~Patil~~ ~~Patil~~ ~~Patil~~
~~Suryawanshi~~ ~~Suryawanshi~~ ~~Suryawanshi~~ ~~Suryawanshi~~ ~~Suryawanshi~~ ~~Suryawanshi~~



Department of Electronics Engineering
 Vivekanand College, Kolhapur

Vivekanand College, Kolhapur (Autonomous)
Department of Biotechnology
Add on course " Instrumentation course in Life Science "

Name of Teacher :- Mrs. A.P. Jadhav

Attendance Add on Course

Roll No	Name of The Students	16/9/19	14/10/19	15/10/19	16/10/19	17/10/19
1	BAGWAN SIDDIK FIROJ	Bagwan A	A	Bagwan A	A	Bagwan A
2	BATE SWARUP SUNIL	Swarp	Swarp	Swarp	Swarp	Swarp
3	BHAT POURANIMA SUHAS	Subot	Subot	Subot	A	Subot
4	BIJAPUKAR SHIRIN AJAY	Shirin	Shirin	Shirin	Shirin	Shirin
5	CHOPADE SAMADHAN SHRIMANT					
6	DESA FLAVIAN AVELINE	Flaviana	Flaviana	Flaviana	Flaviana	Flaviana
7	DHEKALE SOURABH VINOD	Shikhar	Shikhar	A	Shikhar	Shikhar
8	JADHAV SALONI BAJIRAO	A	A	Saloni	Saloni	Saloni
9	JADHAV SHWETA VISHWASH	Shweta	Shweta	Shweta	Shweta	Shweta
10	JITKAR SHRUTI SHASIKANT	Shruti	A	A	A	Shruti
11	KAMBLE PRANAY PUNDLIK	Pranay	Pranay	Pranay	Pranay	Pranay
12	KARANDE VRUSHALI SANJAY	Vrushali	Vrushali	Vrushali	Vrushali	Vrushali
13	KOLEKAR SHREYAS DHANAJAY	Shreyas	Shreyas	Shreyas	Shreyas	Shreyas
14	KUMBHAR SANTOSH ARUN	A	A	A	A	Santosh
15	MADHAV GAURI PRABHAKAR	Gauri	Gauri	Gauri	Gauri	Gauri
16	MAGDUM SOHAN SUNIL	Sohan	A	Sohan	Sohan	Sohan
17	NIRWANE VISHAKHA CHANDRAKANT	Vishakha	Vishakha	Vishakha	A	Vishakha
18	PATASKAR PURNNANKA NITIN	A	A	A	A	
19	PATHAN ALIM ALATIF	A.A.Pathan.	A.A.Pathan.	A.A.Pathan.	A	A.A.Pathan.
20	PATIL AKANKSHA SHIVAJI	Akanksha	Akanksha	Akanksha	A	Akanksha
21	PATIL SHIVANI S.	A	A	A	A	Shivani
22	PATIL SHRUTIKA SUBHASHI	Shrutika	Shrutika	Shrutika	A	Shrutika
23	PATIL TEJAS SANJAY	Tejas	Tejas	Tejas	Tejas	Tejas
24	RANDIVE SAKSHI MANIK	Sakshi	Sakshi	Sakshi	Sakshi	Sakshi
25	ROTE SAKSHI SANJAY	Sakshi	Sakshi	Sakshi	Sakshi	Sakshi
26	SARDA SAHIL SAGAR	Sahil	Sahil	Sahil	Sahil	Sahil

27	SHINDE DISHA SAMBHAJI	Shinde	A	A	A	A	
28	SHINTRE SNEHA ANIL	Shintre	Shintre	Shintre	Shintre	Shintre	
29	SUTAR SHEJAL PRAKASH	Sutar	Sutar	Sutar	Sutar	Sutar	
30	TAMBOLI YUNUS YASIN	Yunus	Yunus	Yunus	Yunus	Yunus	
31	ABHISHEK PATIL	Patil	Patil	Patil	Patil	Patil	
32	PANDAV VINITA	Pandav	A	A	A		
33	PATIL GAURI DEVBA	Patil	A	A	A		
34	KSHITIJA KHARADE	Kharade	A	A	A		
35	SHAMKH NIMRAH SHAKIL	Shamkh	A	A	A		
36	YASH SANDESH BARAPATRE	Yash	Yash	Yash	Yash		
37	PRANAV SHRIRAM DATAR	Pranav	Pranav	Pranav	Pranav		
38	MANKAR IFAT ASIF	Mankar	Mankar	Mankar	Mankar		
39	CHAITRALI SHINDE	Shinde	A	A	A	Chaitrali	
40	ROHAN RAKSHEKHAR MANVEL	Manvel	Manvel	Manvel	Manvel		

5 sushant sardar patil
Prasad B. Suryawanshi



SH
HEAD
Department of Electronics (EPR&C)
Vivekanand College, Kolhapur

Name of Teacher : - Miss. Nadaf S.H.

Attendance Add on Course

Wednesday Thurs

Roll No	Name of The Students	18/09/19	19/09/19	25/9/19	26/9/19	27/9/19
1	BAGWAN SIDDIK FIROJ	Siddik	Ab	Ab	Ab	Bagwan
2	BATE SWARUP SUNIL	Ab	Swarup	Swarup	Swarup	Swarup
3	BHAT POURANIMA SUHAS	Ab	Pouranima	Ab	Ab	Suhas
4	BIJAPUKAR SHIRIN AJAY	Ab	Shirin	Shirin	Shirin	Shirin
5	CHOPADE SAMADHAN SHRIMANT	Ab	Ab	Ab	Ab	
6	DESA FLAVIAN AVELINE	Flaviana	Flaviana	Flaviana	Flaviana	Flaviana
7	DHEKALE SOURABH VINOD	Ab	Sourabh	Schell	Schell	Schell
8	JADHAV SALONI BAJIRAO	Saloni	Saloni	Saloni	Saloni	Saloni
9	JADHAV SHWETA VISHWASH	Shweta	Shweta	Shweta	Shweta	Shweta
10	JITKA'S SHRUTI SHASIKANT	Shruti	Shruti	Shruti	Shruti	Shruti
11	KAMBLE PRANAY PUNDLIK	Ab	Pranay	Pranay	Pranay	Pranay
12	KIRANDE VRUSHALI SANJAY	Vrushali	Vrushali	Vrushali	Vrushali	Vrushali
13	KOLEKAR SHREYAS DHANAY	Shreyas	Shreyas	Shreyas	Shreyas	Shreyas
14	KUMBHAR SANTOSH ARUN	Ab	Ab	Ab	Ab	Santosh
15	MADHAV GAURI PRABHAKAR	Prabhakar	Prabhakar	Prabhakar	Prabhakar	Prabhakar
16	MAGDUM SOHAN SUNIL	Sohan	Ab	Ab	Ab	Sohan
17	NIRWANE VISHAKHA CHANDRAKANT	Vishakha	Ab	Ab	Ab	Vishakha
18	PATASKAR PURNNANKA NITIN	Purnanka	Purnanka	Ab	Ab	
19	PATHAN ALIM ALATIF	Ab	A.A. Pathan	A.A. Pathan	A.A. Pathan	A.A. Pathan
20	PATIL AKANKSHA SHIVAJI	Akanksha	Akanksha	Akanksha	Akanksha	Akanksha
21	PATIL SHIVANI S.	Shivani	Shivani	Ab	Ab	Shivani
22	PATIL SHRUTIKA SUBHASH	Shrutika	Shrutika	Ab	Ab	Shrutika
23	PATIL TEJAS SANJAY	Tejas	Tejas	Ab	Ab	Tejas
24	RANDIVE SAKSHI MANIK	Sakshi	Sakshi	Sakshi	Sakshi	Sakshi
25	ROTE SAKSHI SANJAY	Sakshi	Ab	Ab	Sakshi	Sakshi
26	SARDA SAHIL SAGAR	Sahil	Sahil	Sahil	Sahil	Sahil

18.09.2019 19.09/19 25/19/19 26/9/19

27	SHINDE DISHA SAMBHAJI	AS	AS	Ab	Ab	Ab		
28	SHINTRE SNEHA ANIL	AS	Ab	Ab	Ab	Ab		
29	SUTAR SHEJAL PRAKASH	AS	AS	Ab	Ab	Ab		
30	TAMBOLI YUNUS YASIN	YUS	YUS	YUS	YUS	YUS		
31	ABHISHEK PATIL	Ab	Ab	Ab	Ab	Ab		
32	PANDAV VINITA	Ab	Ab	Ab	Ab	Ab		
33	PATIL GAURI DEVBA	Ab	Ab	Ab	Ab	Ab		
34	KSHITIJA KHARADE	Ab	Ab	Ab	Ab	Ab		
35	SHAKH NIMRAH SHAKIL	Ab	Ab	Ab	Ab	Ab		
36	YASH SANDESH BARAPATRE	Ab	Ab	Ab	Ab	Ab		
37	PRANAV SHRIRAM DATAR	Ab	Ab	Ab	Ab	Ab		
38	MANKAR IFAT ASIF	Ab	Ab	Ab	Ab	Ab		
39	CHAITRALI SHINDE	Ab	Ab	Ab	Ab	Ab		
40	ROHAN RAKSHEKHAR MANVEL	Ab	Ab	Ab	Ab	Ab		
5)	Patil Sushant Sardar	Patil	Patil	Patil	Patil	Patil		
31)	Suryawansi Prasad Bhimrao	Suryawansi	Suryawansi	Suryawansi	Suryawansi	Suryawansi		



S. H. Patil
 HEAD
 Department of Biotechnology (Entrepreneur)
 Vivekanand College, Kolhapur

Vivekanand College, Kolhapur (Autonomous)
Department of Biotechnology
Add on course " Instrumentation course in Life Science "

Name of Teacher :- Ms V.N. More.

Attendance Add on Course

Roll No	Name of The Students	1/11/19	2/11/19	3/11/19	4/11/19	5/11/19	6/11/19
1	BAGWAN SIDDIK FIROJ	Bagwan	Bagwan	Bagwan	Bagwan	Bagwan	Bagwan
2	BATE SWARUP SUNIL	Bate	Bate	Bate	Bate	Bate	Bate
3	BHAT POURANIMA SUHAS	Bhat	Bhat	Bhat	Bhat	Bhat	Bhat
4	BIJAPUKAR SHIRIN AJAY	Bijay	Bijay	Bijay	Bijay	Bijay	Bijay
✓ 5	CHOPADE SAMADHAN SHRIMANT	Chopade	Chopade	Chopade	Chopade	Chopade	Chopade
6	DESA FLAVIAN AVELINE	Flaviana	Flaviana	Flaviana	Flaviana	Flaviana	Flaviana
7	DHEKALE SOURABH VINOD	Dhekal	Dhekal	Dhekal	Dhekal	Dhekal	Dhekal
8	JADHAV SALONI BAJIRAO	Jadhav	Jadhav	Jadhav	Jadhav	Jadhav	Jadhav
9	JADHAV SHWETA VISHWASH	Shweta	Shweta	Shweta	Shweta	Shweta	Shweta
10	JITKAR SHRUTI SHASIKANT	Shruti	Shruti	Shruti	Shruti	Shruti	Shruti
11	KAMBLE PRANAY PUNDLIK	Pranay	Pranay	Pranay	Pranay	Pranay	Pranay
12	KARANDE VRUSHALI SANJAY	Vrushali	Vrushali	Vrushali	Vrushali	Vrushali	Vrushali
13	KOLEKAR SHREYAS DHANAJAY	Shreyas	Shreyas	Shreyas	Shreyas	Shreyas	Shreyas
14	KUMBHAR SANTOSH ARUN	Santosh	Santosh	Santosh	Santosh	Santosh	Santosh
15	MADHAV GAURI PRABHAKAR	Madhav	Madhav	Madhav	Madhav	Madhav	Madhav
16	MAGDUM SOHAN SUNIL	Magdum	Magdum	Magdum	Magdum	Magdum	Magdum
17	NIRWANE VISHAKHA CHANDRAKANT	Nirwane	Nirwane	Nirwane	Nirwane	Nirwane	Nirwane
18	PATASKAR PURNNANKA NITIN						
19	PATHAN ALIM ALATIF	A.A. Pathan	A.A. Pathan	A.A. Pathan	A.A. Pathan	A.A. Pathan	A.A. Pathan
20	PATIL AKANKSHA SHIVAJI	Patil	Patil	Patil	Patil	Patil	Patil
21	PATIL SHIVANI S.	Shivani	Shivani	Shivani	Shivani	Shivani	Shivani
22	PATIL SHRUTIKA SUBHASH	Shrutika	Shrutika	Shrutika	Shrutika	Shrutika	Shrutika
23	PATIL TEJAS SANJAY	Tejas	Tejas	Tejas	Tejas	Tejas	Tejas
24	RANDIVE SAKSHI MANIK	Randive	Randive	Randive	Randive	Randive	Randive
25	ROTE SAKSHI SANJAY	Rote	Rote	Rote	Rote	Rote	Rote
26	SARDA SAHIL SAGAR	Sard	Sard	Sard	Sard	Sard	Sard

27	SHINDE DISHA SAMBHAJI	Shinde	Shinde	Shinde	Shinde	Shinde	Shinde	Shinde
28	SHINTRE SNEHA ANIL	Shintre	Shintre	Shintre	Shintre	Shintre	Shintre	Shintre
29	SUTAR SHEJAL PRAKASH	Sutar	Sutar	Sutar	Sutar	Sutar	Sutar	Sutar
30	TAMBOLI YUNUS YASIN	Yus	Yus	Yus	Yus	Yus	Yus	Yus
31	ABHISHEK PATIL	Patil	Patil	Patil	Patil	Patil	Patil	Patil
32	PANDAV VINITA							
33	PATIL GAURI DEVBA	Patil	Patil	Patil	Patil	Patil	Patil	Patil
34	KSHITIJA KHARADE							
35	SHEKH NIMRAH SHAKIL	Shakil	Shakil	Shakil	Shakil	Shakil	Shakil	Shakil
36	YASH SANDESH BARAPATRE							
37	PRANAV SHRIRAM DATAR							
38	MANKAR IFAT ASIF							
39	CHAITRALI SHINDE	Shinde	Shinde	Shinde	Shinde	Shinde	Shinde	Shinde
40	ROHAN RAKSHEKHAR MANVEL							

Sushant Sankar Patil
Prasad B. Suryawanshi

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Suryawanshi Suryawanshi Suryawanshi Suryawanshi Suryawanshi Suryawanshi



Department of Education, Government of Maharashtra
Vivekanand College, Kolhapur

Vivekanand College, Kolhapur (Autonomous)
 Department of Biotechnology
 Add on course " Instrumentation course in Life Science "

Name of Teacher :- Ms M.D. Ulpar.

Attendance Add on Course

Roll No	Name of The Students	21/11/19	22/11/19	23/11/19	24/11/19	25/11/19
1	BAGWAN SIDDIK FIROJ	Bagwan	Bagwan	Bagwan	Bagwan	Bagwan
2	BATE SWARUP SUNIL	Bate	Bate	Bate	Bate	Bate
3	BHAT POURANIMA SUHAS	Bhat	Bhat	Bhat	Bhat	Bhat
4	BIJAPUKAR SHIRIN AJAY	Bijar	Bijar	Bijar	Bijar	Bijar
5	CHOPADE SAMADHAN SHRIMANT	Chopade	Chopade	Chopade	Chopade	Chopade
6	DESA FLAVIAN AVELINE	Flaviana	Flaviana	Flaviana	Flaviana	Flaviana
7	DHEKALE SOURABH VINOD	Dhekal	Dhekal	Dhekal	Dhekal	Dhekal
8	JADHAV SALONI BAJIRAO	Jadhav	Jadhav	Jadhav	Jadhav	Jadhav
9	JADHAV SHWETA VISHWASH	Shweta	Shweta	Shweta	Shweta	Shweta
10	JITKAR SHRUTI SHASIKANT	Shruti	Shruti	Shruti	Shruti	Shruti
11	KAMBLE PRANAY PUNDLIK	Pranay	Pranay	Pranay	Pranay	Pranay
12	KARANDE VRUSHALI SANJAY	Vrushali	Vrushali	Vrushali	Vrushali	Vrushali
13	KOLEKAR SHREYAS DHANAJAY	S.D.V	S.D.V	S.D.V	S.D.V	S.D.V
14	KUMBHAR SANTOSH ARUN	S.A.P	S.A.P	S.A.P	S.A.P	S.A.P
15	MADHAV GAURI PRABHAKAR	Gauri	Gauri	Gauri	Gauri	Gauri
16	MAGDUM SOHAN SUNIL	Sohan	Sohan	Sohan	Sohan	Sohan
17	NIRWANE VISHAKHA CHANDRAKANT	Vishakha	Vishakha	Vishakha	Vishakha	Vishakha
18	PATASKAR PURNANKA NITIN	Purnanka	Purnanka	Purnanka	Purnanka	Purnanka
19	PATHAN ALIM ALATIF	A.A.Pathan	A.A.Pathan	A.A.Pathan	A.A.Pathan	A.A.Pathan
20	PATIL AKANKSHA SHIVAJI	Akanksha	Akanksha	Akanksha	Akanksha	Akanksha
21	PATIL SHIVANI S.	Shivani	Shivani	Shivani	Shivani	Shivani
22	PATIL SHRUTIKA SUBHASH	Shrutika	Shrutika	Shrutika	Shrutika	Shrutika
23	PATIL TEJAS SANJAY	Tejas	Tejas	Tejas	Tejas	Tejas
24	RANDIVE SAKSHI MANIK	Sakshi	Sakshi	Sakshi	Sakshi	Sakshi
25	ROTE SAKSHI SANJAY	Sakshi	Sakshi	Sakshi	Sakshi	Sakshi
26	SARDA SAHIL SAGAR	Sahil	Sahil	Sahil	Sahil	Sahil

27	SHINDE DISHA SAMBHAJI	Shinde	Shinde	Shinde	Shinde	Shinde	Shinde	Shinde
28	SHINTRE SNEHA ANIL	Fatale	Fatale	Fatale	Fatale	Fatale		
29	SUTAR SHEJAL PRAKASH	YUNIS	YUNIS	YUNIS	YUNIS	YUNIS		
30	TAMBOLI YUNUS YASIN	YUNIS	YUNIS	YUNIS	YUNIS	YUNIS		
31	ABHISHEK PATIL	Patil	Patil	Patil	Patil	Patil		
32	PANDAV VINITA	Patil	Patil	Patil	Patil	Patil		
33	PATIL GAURI DEVBA	Patil	Patil	Patil	Patil	Patil		
34	KSHITIJ KHARADE	Khare	Khare	Khare	Khare	Khare		
35	SHEKH NIMRAH SHAKIL							
36	YASH SANDESH BARAPATRE							
37	PRANAV SHRIRAM DATAR							
38	MANKAR IFAT ASIF							
39	CHAITRALI SHINDE	Shinde	Shinde	Shinde	Shinde	Shinde	Shinde	Shinde
40	ROHAN RAKSHEKHAR MANVEL							

Prasad B. Suryawanshi.
Sushant. Saradars Patil

~~Suryawanshi~~ ~~Suryawanshi~~ ~~Suryawanshi~~ ~~Suryawanshi~~ ~~Suryawanshi~~
B Patil B Patil B Patil B Patil B Patil



HEAD
Department of Biotechnology, "Eminent Educators"
Vivekanand College, Kankar.

27	SHINDE DISHA SAMBHAJI	Shinde	Shinde	Shinde	Shinde	Shinde	Shinde	Shinde	Shinde
28	SHINDE SNEHA ANIL	Shinde	Shinde	Shinde	Shinde	Shinde	Shinde	Shinde	Shinde
29	SUTAR SHEJAL PRARASHI	Sutar	Sutar	Sutar	Sutar	Sutar	Sutar	Sutar	Sutar
30	TAMBOLI YUNUS YASIN	Yusuf	Yusuf	Yusuf	Yusuf	Yusuf	Yusuf	Yusuf	Yusuf
31	ABHISHEK PATIL	Patil	Patil	Patil	Patil	Patil	Patil	Patil	Patil
32	PANDAV VINITA	Pandav	Pandav	Pandav	Pandav	Pandav	Pandav	Pandav	Pandav
33	PATIL GAURI DEVBA	Patil	Patil	Patil	Patil	Patil	Patil	Patil	Patil
34	KSHITIJA KHARADE	Khare	Khare	Khare	Khare	Khare	Khare	Khare	Khare
35	SHEKH NIMRAH SHAKIL	Shah	Shah	Shah	Shah	Shah	Shah	Shah	Shah
36	YASH SANDESH BARAPATRE	Barpatre	Barpatre						
37	PRANAV SHRIRAM DATAR	Datar	Datar						
38	MANKAR IFAT ASIF	Mankar	Mankar						
39	CHAITRALI SHINDE	Shinde	Shinde	Shinde	Shinde	Shinde	Shinde	Shinde	Shinde
40	ROHAN RAKSHEKHAR MANVEL	Manvel	Manvel						

sustant sardar Patil
Prasad B. Suryawanshi

~~Patil~~ ~~Suryawanshi~~ ~~Patil~~ ~~Suryawanshi~~ ~~Patil~~ ~~Suryawanshi~~ ~~Patil~~ ~~Suryawanshi~~ ~~Patil~~ ~~Suryawanshi~~ ~~Patil~~ ~~Suryawanshi~~ ~~Patil~~ ~~Suryawanshi~~ ~~Patil~~ ~~Suryawanshi~~



Fin
HEAD
Department of Biotechnology (Emr) W/O (Covers)
Vivekanand College, Keshavnagar.


ADD-ON COURSE

PRACTICALS ATTENDANCE

Roll No	Name of the students	Practical 1 Dialysis	Practical 2 Chromatography Ion Exchange	Practical 3 Chromatography Gel Filtration	Practical 4 HLC Chromatography	Practical 5 paper Chromatography	Practical 6 Spectrophotometer	Practical 7 PCR	Practical 8 LAF
21	PATIL SHIVANI S.	Shivani S.	Shivani S.	Shivani S.	Shivani S.	Shivani S.	Shivani S.	Shivani S.	Shivani S.
22	PATIL SHRUTIKA SUBHASH	Shrutika S.	Shrutika S.	Shrutika S.	Shrutika S.	Shrutika S.	Shrutika S.	Shrutika S.	Shrutika S.
23	PATIL TEJAS SANJAY	Tejas	Tejas	Tejas	Tejas	Tejas	Tejas	Tejas	Tejas
24	RANDIVE SAKSHI MANIK	Sakshi M.	Sakshi M.	Sakshi M.	Sakshi M.	Sakshi M.	Sakshi M.	Sakshi M.	Sakshi M.
25	ROTE SAKSHI SANJAY	Sakshi S.	Sakshi S.	Sakshi S.	Sakshi S.	Sakshi S.	Sakshi S.	Sakshi S.	Sakshi S.
26	SARDA SAHIL SAGAR	Sahil S.	Sahil S.	Sahil S.	Sahil S.	Sahil S.	Sahil S.	Sahil S.	Sahil S.
27	SHINDE DISHA SAMBHAJI	Shinde D.	Shinde D.	Shinde D.	Shinde D.	Shinde D.	Shinde D.	Shinde D.	Shinde D.
28	SHINTRE SNEHA ANIL	Shintre S.	Shintre S.	Shintre S.	Shintre S.	Shintre S.	Shintre S.	Shintre S.	Shintre S.
29	SUTAR SHEJAL PRAKASH	Shejal S.	Shejal S.	Shejal S.	Shejal S.	Shejal S.	Shejal S.	Shejal S.	Shejal S.
30	TAMBOLI YUNUS YASIN	Yunus Y.	Yunus Y.	Yunus Y.	Yunus Y.	Yunus Y.	Yunus Y.	Yunus Y.	Yunus Y.
31	ABHISHEK PATIL	Abhishek P.	Abhishek P.	Abhishek P.	Abhishek P.	Abhishek P.	Abhishek P.	Abhishek P.	Abhishek P.
32	PANDAV VINITA								
33	PATIL GAURI DEVBA	Gauri P.	Gauri P.	Gauri P.	Gauri P.	Gauri P.	Gauri P.	Gauri P.	Gauri P.
34	KSHITUA KHARADE								
35	SHEKH NIMRAH SHAKIL	Nimra S.	Nimra S.	Nimra S.	Nimra S.	Nimra S.	Nimra S.	Nimra S.	Nimra S.
36	YASH SANDESH BARAPATRE								
37	PRANAV SHRIRAM DATAR								
38	MANKAR IFAT ASIF								
39	CHAITRALI SHINDE	Chaitrali S.	Chaitrali S.	Chaitrali S.	Chaitrali S.	Chaitrali S.	Chaitrali S.	Chaitrali S.	Chaitrali S.
40	ROHAN RAKSHEKHAR MANVEL	Rohan M.	Rohan M.	Rohan M.	Rohan M.	Rohan M.	Rohan M.	Rohan M.	Rohan M.
41	PRASAD SURAYAWANSHI	Prasad S.	Prasad S.	Prasad S.	Prasad S.	Prasad S.	Prasad S.	Prasad S.	Prasad S.


 CO-ORDINATOR
 CO-ORDINATOR
 ADD-ON COURSE
 DEPARTMENT OF BIOTECHNOLOGY
 WVEKANAND COLLEGE, KOLHAPUR
 (EMPOWERED AUTONOMOUS)




 HEAD
 Department of Biotechnology
 Vivekanand College, Kolhapur

Roll No	Name of the students	Practical 9 SPC	Practical 10 Flame Photome- ter	Practical 11 MicroMETS	Practical 12 U.V electrophoresis	Practical 13 Gel Doc	Practical 14 U.V Transilluminator	Practical 15 Aseptic Inoculation Meristem	Practical 16 Aseptic Inoculation Embryo	Practical 17 Surface sterilization
21	PATIL SHIVANI S.	Shivani	Shivani	Shivani	Shivani	Shivani	Shivani	Shivani	Shivani	Shivani
22	PATIL SHRUTIKA SUBHASH	Shrutika	Shrutika	Shrutika	Shrutika	Shrutika	Shrutika	Shrutika	Shrutika	Shrutika
23	PATIL TEJAS SANJAY	Tejas	Tejas	Tejas	Tejas	Tejas	Tejas	Tejas	Tejas	Tejas
24	RANDIVE SAKSHI MANIK	Sakshi	Sakshi	Sakshi	Sakshi	Sakshi	Sakshi	Sakshi	Sakshi	Sakshi
25	ROTE SAKSHI SANJAY	Sakshi	Sakshi	Sakshi	Sakshi	Sakshi	Sakshi	Sakshi	Sakshi	Sakshi
26	SARDA SAHIL SAGAR	Sahil	Sahil	Sahil	Sahil	Sahil	Sahil	Sahil	Sahil	Sahil
27	SHINDE DISHA SAMBHAJI	Disha	Disha	Disha	Disha	Disha	Disha	Disha	Disha	Disha
28	SHINTRE SNEHA ANIL	Sneha	Sneha	Sneha	Sneha	Sneha	Sneha	Sneha	Sneha	Sneha
29	SUTAR SHEJAL PRAKASH	Shejal	Shejal	Shejal	Shejal	Shejal	Shejal	Shejal	Shejal	Shejal
30	TAMBOLI YUNUS YASIN	Yunus	Yunus	Yunus	Yunus	Yunus	Yunus	Yunus	Yunus	Yunus
31	ABHISHEK PATIL	Abhishek	Abhishek	Abhishek	Abhishek	Abhishek	Abhishek	Abhishek	Abhishek	Abhishek
32	PANDAV VINITA	Vinita	Vinita	Vinita	Vinita	Vinita	Vinita	Vinita	Vinita	Vinita
33	PATIL GAURI DEVBA	Gauri	Gauri	Gauri	Gauri	Gauri	Gauri	Gauri	Gauri	Gauri
34	KSHITUA KHARADE	Kshitiya	Kshitiya	Kshitiya	Kshitiya	Kshitiya	Kshitiya	Kshitiya	Kshitiya	Kshitiya
35	SHEKH NIMRAH SHAKIL	Nimrah	Nimrah	Nimrah	Nimrah	Nimrah	Nimrah	Nimrah	Nimrah	Nimrah
36	YASH SANDESH BARAPATRE	Yash	Yash	Yash	Yash	Yash	Yash	Yash	Yash	Yash
37	PRANAV SHRIRAM DATAR	Pranav	Pranav	Pranav	Pranav	Pranav	Pranav	Pranav	Pranav	Pranav
38	MANKAR IFAT ASIF	Ifat	Ifat	Ifat	Ifat	Ifat	Ifat	Ifat	Ifat	Ifat
39	CHAITRALI SHINDE	Chaitrali	Chaitrali	Chaitrali	Chaitrali	Chaitrali	Chaitrali	Chaitrali	Chaitrali	Chaitrali
40	ROHAN RAKSHEKHAR MANVEL	Rohan	Rohan	Rohan	Rohan	Rohan	Rohan	Rohan	Rohan	Rohan
41	PRASAD SURAYAWANSHI	Surayawanshi	Surayawanshi	Surayawanshi	Surayawanshi	Surayawanshi	Surayawanshi	Surayawanshi	Surayawanshi	Surayawanshi

[Signature]

CO-ORDINATOR
CO-ORDINATOR/ISE

DEPARTMENT OF BIOTECHNOLOGY
JIVEKANAND COLLEGE, KOLHAPUR
(EMPOWERED AUTONOMOUS)



[Signature]
HEAD

DEPARTMENT OF BIOTECHNOLOGY

Attendance of Practicals carried out - "VAD-1611 INSTRUMENTATION COURSE IN LIFE SCIENCES"

Roll No	Name of the students	Practical 18 <u>Media preparation</u>	Practical 19 <u>Homogenization by liquid nitrogen</u>	Practical 20 <u>General instrumentation in life sciences</u>
1	BAGWAN SIDDIK FIROJ	Bagwan	Bagwan	Bagwan
2	BATE SWARUP SUNIL	Bate	Bate	Bate
3	BHAT POURANIMA SUHAS	Bhat	Bhat	Bhat
4	BIJAPUKAR SHIRIN AJAY	Bijap	Bijap	Bijap
5	SUSHANT SARADAR PATIL	Spatil	Spatil	Spatil
6	DESA FLAVIAN AVELINE	Flaviana	Flaviana	Flaviana
7	DHEKALE SOURABH VINOD	Dhekal	Dhekal	Dhekal
8	JADHAV SALONI BAJIRAO	Jadha	Jadha	Jadha
9	JADHAV SHWETA VISHWASH	Shweta	Shweta	Shweta
10	JITKAR SHRUTI SHASIKANT	Shruti	Shruti	Shruti
11	KAMBLE PRANAY PUNDLIK	Kamble	Kamble	Kamble
12	KARANDE VRUSHALI SANJAY	Karande	Karande	Karande
13	KOLEKAR SHREYAS DHANAJAY	Kolekar	Kolekar	Kolekar
14	KUMBHAR SANTOSH ARUN	Kumbar	Kumbar	Kumbar
15	MADHAV GAURI PRABHAKAR	Madhav	Madhav	Madhav
16	MAGDUM SOHAN SUNIL	Magdum	Magdum	Magdum
17	NIRWANE VISHAKHA CHANDRAKANT	Nirwane	Nirwane	Nirwane
18	PATASKAR PURNNANKA NITIN			
19	PATHAN ALIM ALATIF	A.A. Pathan.	A.A. Pathan.	A.A. Pathan.
20	PATIL AKANKSHA SHIVAJI	Patil	Patil	Patil

VIVEKANAND COLLEGE (AUTONOMOUS), KOLHAPUR

DEPARTMENT OF BIOTECHNOLOGY

ADD ON COURSE: "VAD -1611 INSTRUMENTATION COURSE IN LIFE SCIENCES"

EXAM -THEORY AND PRACTICAL

30+1=31
= 40 marks
M. M. M.

Q1 choose the correct alternative and mark the Answer:

- How does centrifugation work?
a) Through dripping particles
b) Through spinning
c) By keeping large particle in the center and smaller on the outside
d) By separating particles into different tubes
- A primary objective of cell fractionation is _____
a) to identify the enzymes outside the organelles.
b) to view the structure of cell membranes.
c) to separate the major organelles so their particular functions can be determined.
d) to determine the size of various organelles.
- The electrodes used in pH measurement have which of the following internal resistances?
a) Very low resistance
b) Moderate resistance
c) Very high resistance
d) No resistance
- _____ is used for mixing the chemically hazardous solutions in test tube.
a) Centrifuge
b) Vortex mixer
c) Magnetic stirrer
d) Microfuge
- _____ is the instrument used for drawing out the exact amount of the solution such as acids, bases poisonous salts.
a) Hand Refractometer
b) Pipette
c) Auto pipettor
d) Micropipette
- We can weigh any solids accurately by using _____
a) Watch glass weighing balance
b) Digital Weighing Balance
c) Traditional balance
d) Manual balance

VIVEKANAND COLLEGE (AUTONOMOUS), KOLHAPUR

DEPARTMENT OF BIOTECHNOLOGY

ADD ON COURSE: "VAD -1611 INSTRUMENTATION COURSE IN LIFE SCIENCES"

EXAM -THEORY AND PRACTICAL

= 40 marks
24+17.25
41.25

Q1 choose the correct alternative and mark the Answer:

- How does centrifugation work?
 - Through dripping particles
 - Through spinning
 - By keeping large particle in the center and smaller on the outside
 - By separating particles into different tubes
- A primary objective of cell fractionation is _____
 - to identify the enzymes outside the organelles.
 - to view the structure of cell membranes.
 - to separate the major organelles so their particular functions can be determined.
 - to determine the size of various organelles.
- The electrodes used in pH measurement have which of the following internal resistances?
 - Very low resistance
 - Moderate resistance
 - Very high resistance
 - No resistance
- _____ is used for mixing the chemically hazardous solutions in test tube.
 - Centrifuge
 - Vortex mixer
 - Magnetic stirrer
 - Microfuge
- _____ is the instrument used for drawing out the exact amount of the solution such as acids, bases poisonous salts.
 - Hand Refractometer
 - Pipette
 - Auto pipettor
 - Micropipette
- We can weigh any solids accurately by using _____
 - Watch glass weighing balance
 - Digital Weighing Balance
 - Traditional balance
 - Manual balance

VIVEKANAND COLLEGE (AUTONOMOUS), KOLHAPUR

DEPARTMENT OF BIOTECHNOLOGY

ADD ON COURSE: "VAD-1611 INSTRUMENTATION COURSE IN LIFE SCIENCES"

EXAM - THEORY AND PRACTICAL

Q1 choose the correct alternative and mark the Answer:

= 40 marks

1. How does centrifugation work?
 a) Through dripping particles
 b) Through spinning
 c) By keeping large particle in the center and smaller on the outside
 d) By separating particles into different tubes
2. A primary objective of cell fractionation is Through spinning. To separate the major organelles so their particular function can be determined.
 a) to identify the enzymes outside the organelles.
 b) to view the structure of cell membranes.
 c) to separate the major organelles so their particular functions can be determined.
 d) to determine the size of various organelles.
3. The electrodes used in pH measurement have which of the following internal resistances?
 a) Very low resistance
 b) Moderate resistance
 c) Very high resistance
 d) No resistance
4. Vortex mixtures is used for mixing the chemically hazardous solutions in test tube.
 a) Centrifuge
 b) Vortex mixer
 c) Magnetic stirrer
 d) Microfuge
5. Auto pipettor is the instrument used for drawing out the exact amount of the solution such as acids, bases poisonous salts.
 a) Hand Refractometer
 b) Pipette
 c) Auto pipettor
 d) Micropipette
6. We can weigh any solids accurately by using Digital weighing balance.
 a) Watch glass weighing balance
 b) Digital Weighing Balance
 c) Traditional balance
 d) Manual balance

270
40

Roll no: - 9207
Year - 2019-2020

class: BSCI Biotechnology (Ent)

35
40

VIVEKANAND COLLEGE (AUTONOMOUS), KOLHAPUR

DEPARTMENT OF BIOTECHNOLOGY

ADD ON COURSE: "VAD -1611 INSTRUMENTATION COURSE IN LIFE SCIENCES"

EXAM -THEORY AND PRACTICAL

Q1 choose the correct alternative and mark the Answer:

= 40 marks

- How does centrifugation work?
 - Through dripping particles
 - Through spinning
 - By keeping large particle in the center and smaller on the outside
 - By separating particles into different tubes *to separate the major organelles*
- A primary objective of cell fractionation is *to separate the major organelles so their particular functions can be determined*
 - to identify the enzymes outside the organelles.
 - to view the structure of cell membranes.
 - to separate the major organelles so their particular functions can be determined.
 - to determine the size of various organelles.
- The electrodes used in pH measurement have which of the following internal resistances?
 - Very low resistance
 - Moderate resistance
 - Very high resistance
 - No resistance
- Vortex mixer* is used for mixing the chemically hazardous solutions in test tube.
 - Centrifuge
 - Vortex mixer
 - Magnetic stirrer
 - Microfuge
- Auto pipette* is the instrument used for drawing out the exact amount of the solution such as acids, bases poisonous salts.
 - Hand Refractometer
 - Pipette
 - Auto pipettor
 - Micropipette
- We can weigh any solids accurately by using *Digital weighing balance*
 - Watch glass weighing balance
 - Digital Weighing Balance
 - Traditional balance
 - Manual balance

Roll no: - 9207
Year: - 2019-2020

class

35
40

VIVEKANAND COLLEGE (AUTONOMOUS), KOLHAPUR

DEPARTMENT OF BIOTECHNOLOGY

ADD ON COURSE: "VAD -1611 INSTRUMENTATION COURSE IN LIFE SCIENCES"

EXAM -THEORY AND PRACTICAL

Q1 choose the correct alternative and mark the Answer:

= 40 marks

1. How does centrifugation work?

a) Through dripping particles

b) Through spinning

c) By keeping large particle in the center and smaller on the outside

d) By separating particles into different tubes *to separate the major organelles*

2. A primary objective of cell fractionation is *to separate the major organelles so their particular functions can be determined*

a) to identify the enzymes outside the organelles. *be determined*

b) to view the structure of cell membranes.

c) to separate the major organelles so their particular functions can be determined.

d) to determine the size of various organelles.

3. The electrodes used in pH measurement have which of the following internal resistances?

a) Very low resistance

b) Moderate resistance

c) Very high resistance

d) No resistance

4. *Vortex* mixer is used for mixing the chemically hazardous solutions in test tube.

a) Centrifuge

b) Vortex mixer

c) Magnetic stirrer

d) Microfuge

5. Auto pipettor is the instrument used for drawing out the exact amount of the solution such as acids, bases poisonous salts.

a) Hand Refractometer

b) Pipette

c) Auto pipettor

d) Micropipette

6. We can weigh any solids accurately by using Digital weighing balance

a) Watch glass weighing balance

b) Digital Weighing Balance

c) Traditional balance

d) Manual balance

VIVEKANAND COLLEGE (AUTONOMOUS), KOLHAPUR

DEPARTMENT OF BIOTECHNOLOGY

ADD ON COURSE: "VAD -1611 INSTRUMENTATION COURSE IN LIFE SCIENCES"

EXAM -THEORY AND PRACTICAL

87/90 = 40 marks
Bhram

Q1 choose the correct alternative and mark the Answer:

1. How does centrifugation work?
a) Through dripping particles
b) Through spinning
c) By keeping large particle in the center and smaller on the outside
d) By separating particles into different tubes
2. A primary objective of cell fractionation is _____
a) to identify the enzymes outside the organelles.
b) to view the structure of cell membranes.
c) to separate the major organelles so their particular functions can be determined.
d) to determine the size of various organelles.
3. The electrodes used in pH measurement have which of the following internal resistances?
a) Very low resistance
b) Moderate resistance
c) Very high resistance
d) No resistance
4. _____ is used for mixing the chemically hazardous solutions in test tube.
a) Centrifuge
b) Vortex mixer
c) Magnetic stirrer
d) Microfuge
5. _____ is the instrument used for drawing out the exact amount of the solution such as acids, bases poisonous salts.
a) Hand Refractometer
b) Pipette
c) Auto pipettor
d) Micropipette
6. We can weigh any solids accurately by using _____
a) Watch glass weighing balance
b) Digital Weighing Balance
c) Traditional balance
d) Manual balance

B.Sc Biotech Academic Year-2019-20
VIVEKANAND COLLEGE (AUTONOMOUS), KOLHAPUR

DEPARTMENT OF BIOTECHNOLOGY

ADD ON COURSE: "VAD-1611 INSTRUMENTATION COURSE IN LIFE SCIENCES"

EXAM - THEORY AND PRACTICAL

Q1 choose the correct alternative and mark the Answer:



= 40 marks

1. How does centrifugation work?

- a) Through dripping particles
- b) Through spinning
- c) By keeping large particle in the center and smaller on the outside
- d) By separating particles into different tubes

2. A primary objective of cell fractionation is

- a) to identify the enzymes outside the organelles. *to separate the major organelles so their particular functions can be determined.*
- b) to view the structure of cell membranes.
- c) to separate the major organelles so their particular functions can be determined.
- d) to determine the size of various organelles.

3. The electrodes used in pH measurement have which of the following internal resistances?

- a) Very low resistance
- b) Moderate resistance
- c) Very high resistance
- d) No resistance

4. Vortex mixer is used for mixing the chemically hazardous solutions in test tube.

- a) Centrifuge
- b) Vortex mixer
- c) Magnetic stirrer
- d) Microfuge

5. Auto pipettor is the instrument used for drawing out the exact amount of the solution such as acids, bases poisonous salts.

- a) Hand Refractometer
- b) Pipette
- c) Auto pipettor
- d) Micropipette

6. We can weigh any solids accurately by using Digital Weighing Balance.

- a) Watch glass weighing balance
- b) Digital Weighing Balance
- c) Traditional balance
- d) Manual balance

VIVEKANAND COLLEGE (AUTONOMOUS), KOLHAPUR

DEPARTMENT OF BIOTECHNOLOGY

ADD ON COURSE: "VAD -1611 INSTRUMENTATION COURSE IN LIFE SCIENCES"

EXAM -THEORY AND PRACTICAL

Q1 choose the correct alternative and mark the Answer:

= 40 marks

- How does centrifugation work?
 a) Through dripping particles
 b) Through spinning
 c) By keeping large particle in the center and smaller on the outside
 d) By separating particles into different tubes
- A primary objective of cell fractionation is _____
 a) to identify the enzymes outside the organelles.
 b) to view the structure of cell membranes.
 c) to separate the major organelles so their particular functions can be determined.
 d) to determine the size of various organelles.
- The electrodes used in pH measurement have which of the following internal resistances?
 a) Very low resistance
 b) Moderate resistance
 c) Very high resistance
 d) No resistance
- Vortex mixer is used for mixing the chemically hazardous solutions in test tube.
 a) Centrifuge
 b) Vortex mixer
 c) Magnetic stirrer
 d) Microfuge
- _____ is the instrument used for drawing out the exact amount of the solution such as acids, bases poisonous salts.
 a) Hand Refractometer
 b) Pipette
 c) Auto pipettor
 d) Micropipette
- We can weigh any solids accurately by using _____
 a) Watch glass weighing balance
 b) Digital Weighing Balance
 c) Traditional balance
 d) Manual balance

24/40

Name :- Pranay Pundlik Kamble Academic Year = 2019-20
class :- B.Sc. I Biotech (Entire)
VIVEKANAND COLLEGE (AUTONOMOUS), KOLHAPUR

DEPARTMENT OF BIOTECHNOLOGY

ADD ON COURSE: "VAD -1611 INSTRUMENTATION COURSE IN LIFE SCIENCES"

EXAM -THEORY AND PRACTICAL

Q1 choose the correct alternative and mark the Answer:

= 40 marks

1. How does centrifugation work?

- a) Through dripping particles
- b) Through spinning
- c) By keeping large particle in the center and smaller on the outside
- d) By separating particles into different tubes

2. A primary objective of cell fractionation is _____.

- a) to identify the enzymes outside the organelles.
- b) to view the structure of cell membranes.
- c) to separate the major organelles so their particular functions can be determined.
- d) to determine the size of various organelles.

3. The electrodes used in pH measurement have which of the following internal resistances?

- a) Very low resistance
- b) Moderate resistance
- c) Very high resistance
- d) No resistance

4. vortex mixer is used for mixing the chemically hazardous solutions in test tube.

- a) Centrifuge
- b) Vortex mixer
- c) Magnetic stirrer
- d) Microfuge

5. micropipette is the instrument used for drawing out the exact amount of the solution such as acids, bases poisonous salts.

- a) Hand Refractometer
- b) Pipette
- c) Auto pipettor
- d) Micropipette

6. We can weigh any solids accurately by using Digital Weighing balance.

- a) Watch glass weighing balance
- b) Digital Weighing Balance
- c) Traditional balance
- d) Manual balance

28
40

Q

- "VAD -1611 Instrumentation Course in Life Sciences" (MARKLIST)

Roll No	Name of the students	Marks	
		Theory	Practicals
1	BAGWAN SIDDIK FIROJ	31	04
2	BATE SWARUP SUNIL	25	06
3	BHAT POURANIMA SUHAS	27	04
4	BIJAPUKAR SHIRIN AJAY	35	07
5	SUSHANT SARDAR PATIL	34	09
6	DESA FLAVIAN AVELINE	32	05
7	DHEKALE SOURABH VINOD	31	04
8	JADHAV SALONI BAJIRAO	24	05
9	JADHAV SHWETA VISHWASH	31	09
10	JITKAR SHRUTI SHASIKANT	24	05
11	KAMBL. PRANAY PUNDLIK	28	05
12	KHRANDE VRUSHALI SANJAY	26	07
13	KOLEKAR SHREYAS DHANAJAY	27	09
14	KUMBHAR SANTOSH ARUN	14	04
15	MADHAV GAURI PRABHAKAR	26	05
16	MAGDUM SOHAN SUNIL	26	04
17	NIRWANE VISHAKHA CHANDRAKANT	28	05
18	PATASKAR PURNNANKA NITIN	14	04
19	PATHAN ALIM ALATIF	31	07
20	PATIL AKANKSHA SHIVAJI	18	07
21	PATIL SHIVANI SHRIKANT	21	04
22	PATIL SHRUTIKA SUBHASH	24	08
23	PATIL TEJAS SANJAY	26	05
24	RANDIVE SAKSHI MANIK	27	05
25	ROTE SAKSHI SANJAY	30	08
26	SARDA SAHIL SAGAR	37	10
27	SHINDE DISHA SAMBHAJI	28	05
28	SHINTRE SNEHA ANIL	27	07
29	SUTAR SHEJAL PRAKASH	31	10
30	TAMBOLI YUNUS YASIN	31	04
31	ABHISHEK PATIL	14	04
32	PANDAV VINITA	14	04
33	PATIL GAURI DEVBA	29	04
34	KSHITIL. KHARADE APPASO	25	04
35	SHEKH NIMRAH SHAKIL	22	05
36	YASH SANDESH BARAPATRE	31	10
37	PRANAV SHRIRAM DATAR	36	09
38	MANKAR IFAT ASIF	14	04
39	CHAITRALI SHINDE VIDYADHAR	16	04
40	ROHAN RAKSHEKHAR MANVEL	30	06
41	PRASAD SURAYAWANSHI BHIMRAO	33	09

D. Padhye
Co Ordinator
CO-ORDINATOR
ADD-ON COURSE

S.h.
Examiner1

A. Shetye
Examiner2

M
Principal
PRINCIPAL
Vivekanand College
Kolhapur



Shri Swami Vivekanand Shikshan Sanstha's
Vivekanand College (Autonomous), Kolhapur
Department of Biotechnology
Add on Course (2019-2020)

MARK LIST

Name of the Course: - "VAD - 1611 Instrumentation Course in Life Sciences"

Name of Student: Shinde Chaitrali Vidyadhar

Class: B.Sc-I Optional Biotechnology

	Theory	Practical	Grand Total	Percentage (%)
Maximum Marks	40	10	50	40
Passing Head	14	04	18	
Marks Obtained	16	04	20	


Co ordinator




Principal



"Education for Knowledge, Science and Culture"
Shikshanmaharshi Dr. Bapuji Salunkhe



Shri Swami Vivekanand Shikshan Sanstha's

VIVEKANAND COLLEGE, KOLHAPUR. (Autonomous)

NAAC Reaccredited : "A" (CGPA 3.24), College with Potential for Excellence by U.G.C., New Delhi
"Star College" by D.B.T. Govt. of India, ISO: 9001-2015

CERTIFICATE

This is to certify that Mr/Ms. _____ of B. Sc.

I/II/III _____ has passed the Value Added Course

"VAD -1611 Instrumentation Course in Life Science" in the Month of

_____ year _____ The said certificate has been issued to him / her after

qualifying the Add-On Course Exam in Theory and Practical at Department of
Biotechnology, Vivekanand College, Kolhapur (Autonomous).

The Testimonials, whereof, are at the seal of the college and the signatures of the
co-ordinator and the Principal of the said college.

Co-ordinator



Principal