



**SHRI SHIVAJI EDUCATION SOCIETY AMRAVATI'S
SCIENCE COLLEGE, CONGRESS NAGAR, NAGPUR**

**Department of Biotechnology
Skill-Based Certificate Course: Immunology & Immunodiagnostics
Session 2019-2020**





RASHTRASANT TUKADOJI MAHARAJ NAGPUR UNIVERSITY
DEPARTMENT OF LIFELONG LEARNING AND EXTENSION
Government of Maharashtra, University Campus, Amravati Road, Nagpur - 440 033. Phone : 2530850
 E-mail : dol@rtnmu@gmail.com

To: The Principal
Shivaji Science College,
Nagpur,
Pin 440 033

Subject: Sanction for Conducting Short Term Courses under
Jeevan Shikshan Abhiyan on No Grant Basis.

Sir/Madam,

With reference to your proposal for conducting Short Term courses indicated below under Jeevan Shikshan Abhiyan of this Department, I am to inform you that your proposal has been accepted by the Department and your College has been granted permission to conduct the course on the following conditions:

Details of the Course

Sr. No.	Name of the Course	Duration	No. of Candidates to be admitted	Fees to be Charged per Student	Fees to be Deposited With the Deptt.
1	Diploma Course in Groundwater Exploration	8 Weeks	20	1200/-	10%
2	Diploma Course in Statistical Quality Control	10 Weeks	10	850/-	10%
3	Diploma Course in Immune Diagnostics	8 Weeks	20	2200/-	10%
4	Diploma Course in Environmental and Water Management	6 Weeks	10	1000/-	10%
5	Diploma Course in Mushroom Cultivation	8 Weeks	20	1000/-	10%
6	Diploma Course in Biofertilisers and Biopesticides	14 Weeks	20	1500/-	10%
7	Diploma Course in Forestry and Wild Life Management	6 Weeks	20	1500/-	10%


Rules & Regulations of this Department regarding these courses should be strictly followed.

- This sanction is valid for this particular Batch only.
- Fees for the course should be charged as per the norms prescribed.
- Expenditure on the course should be incurred as per norms.
- Course should be started within a Month from the date of sanction. Please communicate your acceptance within a month and submit Initial Report Along with list of students admitted.

No.DOLLEZ3719
Dated: 16.10.2019

Your's faithfully,
P. Wasthkar
Director

Dr. A. D. Bobdey
Per n.a.
M. Chare
03-11-2020



f Gulbani
Dr. Pranita Gulbani
Dept. of Biotechnology
Science College, Nagpur-12.

List of the Students: Skill Based Certificate Course- Immunology & Immunodiagnosics

(Session 2019-20)

Sr. No.	Name of Student	Signature
1)	AAYUSHI R. UMREDKAR	<i>Aayushi</i>
2)	ADITI S. KHODE	<i>A. Khode</i>
3)	AISHWARYA B.GOUR	<i>Aishwarya</i>
4)	ANUSHRI A. MOHOD	<i>A. Mohod</i>
5)	ARATI C. NIMBALKAR	<i>Arati Nimbalkar</i>
6)	BADAL P. KURHEKLAR	<i>B. Kurheklar</i>
7)	BHAVANA O. PODDAR	<i>Bhavani</i>
8)	BHAVESH N WADIWA	<i>Bhavesh</i>
9)	BHAVISH G KUMAR	<i>Bhavish</i>
10)	DAKSHA D OHRI	<i>Daksha</i>
11)	HARSH V WARKADE	<i>Harsh</i>
12)	HIMANSHU V BHANDARGE	<i>Himanshu</i>
13)	ISHWARI N GAWANDE	<i>Ishwari</i>
14)	JANHVI H. UDATE	<i>Janhvi</i>
15)	KHUSHI M. KOTHALE	<i>Khushi Kothale</i>
16)	KOMAL R. WAGHMARE	<i>Komal</i>
17)	MANISHA D. WASAKE	<i>Manisha</i>
18)	MANSI R. GAJBE	<i>Mansi</i>
19)	MUSKAN R. CHAURE	<i>M. Chaure</i>
20)	NAZISH A. JEEVAJI	<i>N. Jeevaji</i>
21)	PRATIKSHA M. PALANDURKAR	<i>Pratiksha</i>
22)	PRIYAL A. DHOKE	<i>Priyal</i>
23)	RENUKA O. MISHRA	<i>Renuka</i>
24)	RITIKA R. JADHAV	<i>Ritika</i>
25)	SAKSHI R. KULKULE	<i>Sakshi</i>



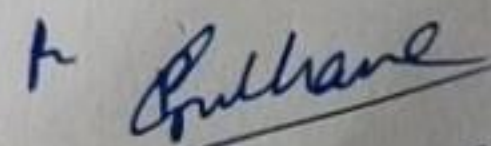
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**Marklist: Skill Based Certificate Course- Immunology
& Immunodiagnostics**

(Session 2018-19)

Roll No	Name of the Student	Marks Obtained out of 50 (Theory)	Marks obtained out of 10 (Internal)	Marks Obtained out of 40 (Practical)	Total
1.	Aayushi R. Umredkar	47	08	35	90
2.	Aditi S. Khode	44	10	30	84
3.	Aishwarya B. Gour	45	09	35	89
4.	Anushri A. Mohod	40	10	35	85
5.	Arati C. Nimbalkar	46	10	30	86
6.	Badal P. Kurhekar	45	10	32	87
7.	Bhavana O. Poddar	40	09	30	79
8.	Bhavesh N. Wadiwa	40	10	35	85
9.	Bhavish G. Kumar	38	09	34	81
10.	Daksha D. Ohri	39	09	35	83
11.	Harsh V. Warkade	39	09	36	84
12.	Himanshu V. Bhandarge	45	09	35	89
13.	Ishwari N. Gawande	42	10	36	88
14.	Janhvi H. Umate	42	10	30	82
15.	Khushi M. Kothale	30	09	34	73
16.	Komal R. Waghmare	40	09	30	79
17.	Manisha D. Wasake	36	10	35	81
18.	Mansi R. Gajbe	26	09	30	65
19.	Muskan R. Chaure	35	09	35	79
20.	Nazish A. Jeevaji	40	10	36	86




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21.	Pratiksha M.Palandurkar	42	09	34	85
22.	Priyal A. Dhoke	28	09	35	72
23.	Renuka O.Mishra	30	09	35	74
24.	RitikaR. Jadhav	35	09	35	79
25.	SakshiR.Kulkule	28	09	36	73



Pratiksha
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**Activity Report: Skill Based Certificate Course- Immunology
& Immunodiagnosics
(Session 2019-20)**

The skill base certificate course syllabus for B.Sc. I, II and III appear students. Fifteen weeks' certificate course in IMMUNOLOGY AND IMMUNODIAGNOSTICS. A total of 25 students were enrolled to the course. The examination of course shall comprise of one theory paper of three hours carries 50 marks and practical of one-hour duration carries 50 marks. Internal assessment for the course based on one theory paper of 10 marks shall be conducted by university approved teachers. Internal assessment marks should be included in minimum passing marks of the students. Candidates are expected to pass separately in theory, internal assessment and practical examination.

Students require 40% marks in theory for passing including internal marks. Separate passing in practical examination is required, assignment submission is necessary to get internal marks. The structure of syllabus for certificate course along with distribution of marks is also displayed in the following table.

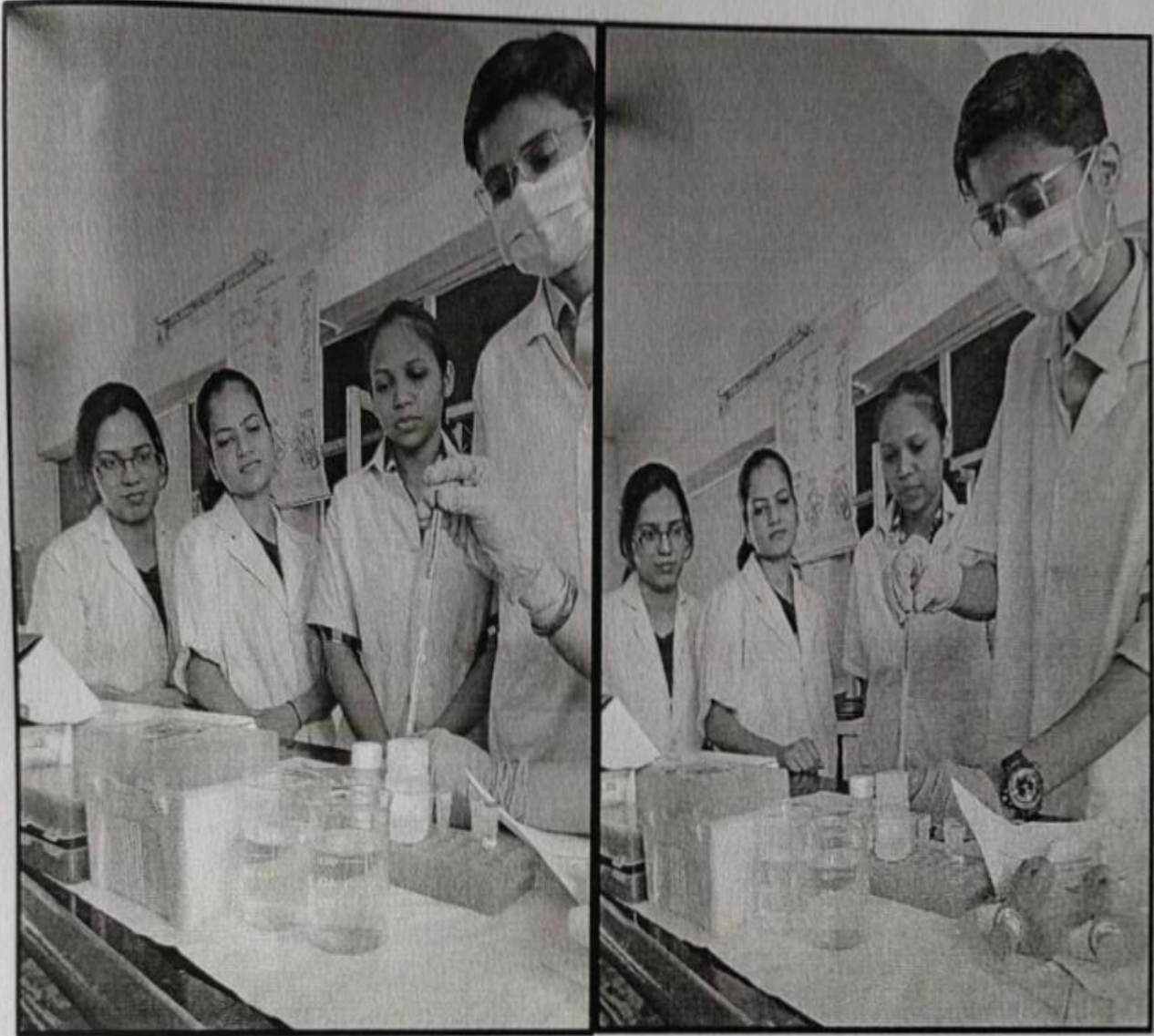
Course	Theory papers and Practicals	Marks			Total marks
		Theory	Internal assessment	Practical	
Certificate course in Immunology and Immunodiagnosics	1. Theory paper - Immunology and Immunodiagnosics	50	10		100
	2. Practicals based on course			40	
		Grand total			100

*Internal assessment -Based on student's attendance and performance during unit test exam and assignment.

Based on assignment plus activity conducted on kit based practical, the Internal Assessment marks are given for theory and practical. Objective mode of examination was conducted.



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Immunology & Immunodiagnostics Kit based Hands on Training

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Rashtrasant Tukadoji Maharaj Nagpur University

Exam Name: Skill based Certificate Course Examination, Summer- 2020

Duration: 1hr

Name of Subject: Immunology and Immunodiagnostics

Max Marks: 50

Medium: English Marks Obtained:

Centre Name: Shri Shivaji Science College Congress Nagar, Nagpur

Date: 13/03/2020

Name of Student:

Year: B.Sc Group :

Note:

(1) Each question carries 2 marks

(2) No negative marking

1. Special feature of Retro viruses
 - a) Reverse transcriptase
 - b) RNA directed DNA polymerases
 - c) Both a & b
 - d) Boils
2. What forms the genome of a virus?
 - a) DNA
 - b) RNA
 - c) Either DNA or RNA
 - d) Both DNA and RNA
3. HIV is belonging to
 - a) Retro Viridae
 - b) Rhabdo Viridae
 - c) Toga Viridae
 - d) Paramyxo Viridae
4. The motile bacteria is
 - a) *Salmonella typhi*
 - b) *Klebsiella pneumonia*
 - c) *Bacillus anthracis*
 - d) *Shigella flexneri*

5. Where is the endoflagella located in Spirochetes?
 - a) In the cell membrane
 - b) In the cytoplasm
 - c) In the peptidoglycan layer
 - d) In the periplasmic space
6. Which of the following is a common method used to detect rheumatoid factor (RF) in the blood?
 - a) Immunofluorescence
 - b) Latex agglutination
 - c) Western blotting
 - d) ELISA
7. What is an antigen?
 - a) A type of white blood cell
 - b) A molecule that can induce an immune response
 - c) A type of antibody
 - d) A cell that engulfs pathogens
8. Complement proteins are heat labile and are destroyed by heating at ____.
 - a) 58°C
 - b) 49°C
 - c) 56°C
 - d) 54°C
9. First line of Defense includes:
 - a) Fever
 - b) Inflammation
 - c) Skin
 - d) Interferon
10. Which of the following is disadvantage of agglutination method:
 - a) Ease of performance
 - b) high degree of sensitivity
 - c) the reactions are only semiquantitative
 - d) speed of performance, usually requiring few minutes
11. Identify the CORRECT statement from the following sentences given below?
 - a) All immunogen are antigens and all antigens are immunogens.
 - b) All immunogens are antigens but NOT all antigens are immunogens.
 - c) All immunogens are NOT antigens but all antigens are immunogens.
 - d) All immunogens are NOT antigens but all antigens are NOT immunogens.
12. The Portion of an Antigen that is recognized and bound by an Ab or TCR/MHC complex?
 - a) Paratope
 - b) Hapten
 - c) Epitope
 - d) Neoantigens

13. . ----- are the principal cells of immune system.
- a) RBC's
 - b) Bone Marrow
 - c) Phagocytic
 - d) WBC's
14. WBC's are formed by which cells?
- a) Mesenchymal Stem cells
 - b) Epithelial Stem cells
 - c) Hematopoietic Stem cells
 - d) Neural Stem cells
15. The antibody that are made by identical immune cells which are all clones and has the tendency to bind with the same epitope is known as:
- a) Polyclonal antibody
 - b) Monoclonal antibody
 - c) Pentaclonal antibody
 - d) Heptaclonal antibody
16. The immunodiffusion technique used to detect concentration of antigen by measuring the diameter of the precipitin ring is known as:
- a) Ouchterlony technique
 - b) Radial immunodiffusion technique
 - c) Passive agglutination
 - d) Precipitation test
17. When the form of antigen is _____, the reaction of an antibody with the antigen can be detected by precipitation.
- a) Soluble
 - b) Insoluble
 - c) Particulate
 - d) all of the above
18. The qualitative immunodiffusion process in which there is movement of both antigen and antibody is called as:
- a) agglutination
 - b) single immunodiffusion
 - c) double immunodiffusion (Ouchterlony test)
 - d) immunoelectrophoresis
19. ELISA can be used to detect which of the following disease:
- a) HIV
 - b) Measles
 - c) Mumps
 - d) all of the above
20. A stimulus that produces a humoral or cell-mediated immune response is called as:

- A) paratope
 - b) epitope
 - c) hapten
 - d) immunogen
21. A molecule that can be made immunogenic by conjugation to a suitable carrier:
- a) Hapten
 - b) antigen
 - c) antibody
 - d) immunogen
22. T- lymphocytes, B- lymphocytes and natural killer cells are sub populations of:
- a) Phagocytic cells
 - b) Dendritic cells
 - c) Lymphocytes
 - d) Granulocytic cells
23. Phagocytic cells contains:
- a) Mast cells
 - b) Nk cells
 - c) Basophils
 - d) Monocytes
24. Rheumatoid arthritis is a chronic inflammatory disorder, which can increase the risk of developing _____.
- a) Rheumatoid nodules
 - b) Carpal tunnel syndrome
 - c) Osteoporosis
 - d) All of these
25. What is the role of goat anti-rabbit IgG horseradish peroxidase conjugate in the experiment?
- a) Antigen
 - b) Primary antibody
 - c) Secondary antibody
 - d) Substrate



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Rashtrasant Tukadoji Maharaj Nagpur University

Exam Name: Skill based Certificate Course Examination, Summer- 2020

Name of Subject: Immunology and Immunodiagnostics

Centre Name: Shri Shivaji Science College Congress Nagar, Nagpur

Date: 13/03/2020

Answer key

- 1) c) Both a & b
- 2) c) Either DNA or RNA
- 3) a) Retro Viridae
- 4) a) *Salmonella typhi*
- 5) d) In the periplasmic space
- 6) b) Latex agglutination
- 7) b) A molecule that can induce an immune response
- 8) c) 56°C
- 9) c) Skin
- 10) c) the reactions are only semiquantitative
- 11) b) All immunogens are antigens but NOT all antigens are immunogens
- 12) c) Epitope
- 13) d) WBC's
- 14) c) Hematopoietic Stem cells
- 15) b) Monoclonal antibody
- 16) b) Radial immunodiffusion technique
- 17) a) Soluble
- 18) c) double immunodiffusion (Ouchterlony test)
- 19) a) HIV
- 20) d) Immunogen
- 21) a) Hapten
- 22) c) Lymphocytes
- 23) d) Monocytes
- 24) d) All of these
- 25) c) Secondary antibody



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Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur

[Established by Government of Central Provinces Education Department by Notification No. 513 dated the 1st of August, 1923 & presently a State University governed by Maharashtra Public Universities Act, 2016(Mah. Act No. VI of 2017)]

University Skill Development Centre (under Board of Lifelong Learning and Extension)

Certificate

No.

Shri/Smt./Ku. Ayushi Umredkar is

awarded with Certificate on successful completion of the course titled

Immunology and Immunodiagnosics in

session 2019-20 under *Jeevan Shikshan Abhiyan* conducted for

45 hours from 16/10/2019 to 23/12/2019 by the *Board of Lifelong*

Learning & Extension in collaboration with Department of Botany,

S.S.E.S. Amt's Science College Congress Nagar, Nagpur, 440012.

He/She has passed the Examination with A Grade

Total Credits Earned : 01

M. S. Gore

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

P. Gulbani

Course Co-ordinator
SSES Amt's Science College
Congress Nagar, Nagpur-12

P. Mathur

Director
Board of Lifelong Learning
and Extension, RTMNU, Nagpur