

MGM's
College of Computer Science & Information Technology,
Department of Computer Science & IT, Nanded.

INTERNAL EXAM I

Class: - T.Y. B.Sc. Biotechnology (SEM V)

Time: - 1 Hour

Subject: - rDNA Technology

Marks: 15

| QNO | Question | | CO | PO | Marks |
|-----|--|--|------|--------------|-------|
| Q1 | Write a note on types and properties of Restriction Enzymes. | | CO 1 | PO1,PO2, PO3 | 5 |
| Q2 | Describe in detail PBR-322 plasmid. | | CO 1 | PO1,PO2, PO3 | 5 |
| Q3 | Write a note on BAC (Bacterial Artificial Chromosome) with application | | CO 1 | PO1,PO2, PO3 | 5 |
| Q4 | Describe in detail Lambda Phage as a Vector System. | | CO 2 | PO1, PO3 | 5 |
| Q5 | Write a note on Markers and Reporter genes. | | CO 2 | PO1, PO3 | 5 |



Subject IC

Shinde S.P.



IQAC
Coordinator


MGM's
College of Computer Science & Information Technology,
Department of Computer Science & IT, Nanded.
INTERNAL EXAM II

Class: - T.Y. B.Sc. Biotechnology (SEM V)
Subject: - rDNA Technology

Time: - 1 Hour
Marks: 15

| QNO | Question | CO | PO | Marks |
|-----|--|------|------------------|-------|
| Q1 | Write a note on Southern Blotting. | CO 3 | PO1,PO2, PO3 | 5 |
| Q2 | Explore in detail DNA Micro array principle & application. | CO 3 | PO1,PO2, PO3 | 5 |
| Q3 | Write a note on PCR: Mechanism, Types and Application | CO 4 | PO2, PO3, PO4 | 5 |
| Q4 | Add a note on Sanger's Sequencing. | CO 4 | PO2, PO3, PO4 | 5 |
| Q5 | Add a note on Western Blotting. | CO 4 | PO2, PO3, PO4 | 5 |


IQAC
Coordinator


Subject IC
shinde s.p



MGM's College of Computer Science & IT, Nanded
Department of Biotechnology and Bioinformatics
Course Outcomes and CO-PO Mapping

| | |
|-------------|---------------------------|
| Subject: | r DNA technology- CCBT-1E |
| Instructor: | Shinde S. P. |

| | |
|-----------|---------|
| Class: | TY BT |
| A.Y. | 2022-23 |
| Semester: | V |

Course Outcomes

| CO ID | Course Outcomes |
|-----------|--|
| CCBT-1E-1 | Develop an understanding of the concept of blotting and sequencing of biomolecules. |
| CCBT-1E-2 | Introduce students to the genomic structure of microbes, techniques pertinent to recombinant DNA technology, and the application of genetic engineering. |
| CCBT-1E-3 | Prepare students' knowledge regarding skills in DNA extraction, purification, and quantification. Additionally, explain the mechanism of transformation. |
| CCBT-1E-4 | Provide information about the basic principles of recombinant DNA technology and demonstrate basic techniques in |

CO-PO Mapping

| CO ID | PO-1 | PO-2 | PO-3 | PO-4 | PO-5 | PO-6 | PO-7 | PO-8 | PO-9 | PO-10 | PO-11 | PO-12 | PSO-1 | PSO-2 | PSO-3 |
|--------------------------------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|
| CCBT-1E-1 | 1 | 2 | 2 | | | | | | | | | | | | |
| CCBT-1E-2 | | 3 | 1 | | | | | | | | | | | | |
| CCBT-1E-3 | 2 | 2 | 1 | | | | | | | | | | | | |
| CCBT-1E-4 | | 1 | 1 | 1 | | | | | | | | | | | |
| Avg Mapping (Mapping Strength) | 1.5 | 2 | 1.25 | 1 | | | | | | | | | | | |


IQAC
Coordinator



CO-PO Mapping Justification

| Course Outcome | Program Outcome | Level | Justification |
|----------------|------------------|-------|---|
| CCBT-1E-1 | PO-1, PO-2, PO-3 | | 1) Sequencing of biomolecules requires some basic knowledge of mathematics and science is require hence level of mapping is low for PO1 2) Sequencing of biomolecules requires conducting experiments and applying techniques to analyze and interpret complex sequencing data data hence level of mapping is moderate for PO2 3) Here rDNA experiments requires design solutions for problems and address public health, safety, cultural, societal and environmental needs hence PO3 is moderate. |
| CCBT-1E-2 | PO-2, PO-3 | | 1) To understand genomic structure of microbes, techniques and the application of genetic engineering knowledge of conducting experiments and applying techniques to analyze and interpret data is required hence level of mapping is High for PO1 2) For above problem it requires address public health, safety, cultural, societal and environmental needs hence level of mapping is low for PO3 |
| CCBT-1E-3 | PO-1, PO-2, PO-3 | | 1) To analyze different DNA samples, extraction, purification, and quantification some basic knowledge of mathematics and science is require hence level of Mapping is moderate for PO1 2) in terms of application knowledge related to some techniques hence Mapping level is moderate for PO2. 3) Here rDNA experiments such as DNA extraction requires design solutions for problems and address public health, safety, cultural, societal and environmental needs hence PO3 is low |
| CCBT-1E-4 | PO-2, PO-3, PO-4 | | 1)To understand basic principles of recombinant DNA technology it requires analyze and interpret data hence level of Mapping is Low for PO2 2) Basic techniques requires design solutions for problems and address public health, safety, cultural, societal and environmental needs hence PO3 is Low 3)Basic techniques requires scientific solutions using first principles of applied sciences, mathematics, and research level is Low for PO4 |


IQAC
 Coordinator



MGM'S College of Computer Science and IT, Nanded
Department of Biotechnology and Bioinformatics
Computation of Course Outcomes Attainment / Periodic Test-I

| | |
|--------------------|---------------------------|
| Subject: | r DNA technology- CCBT-1E |
| Course Instructor: | Shinde S. P. |

| | |
|--------|---------|
| Class: | TY BT |
| A.Y. | 2022-23 |

| Course Outcomes | | Threshold= 45 % | | | | |
|---|-------------------------------|-----------------|-----------|-----------|-----------|-----------|
| | | CCBT-1E-1 | CCBT-1E-1 | CCBT-1E-1 | CCBT-1E-2 | CCBT-1E-2 |
| Maximum Marks | | 5 | 5 | 5 | 5 | 5 |
| Minimum expected marks as per threshold | | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 |
| Roll No | Name of student | Q.1 | Q.2 | Q.3 | Q.4 | Q.5 |
| 1 | Adkine Rohit Bhujang | 1 | | | 1 | |
| 2 | Bengar Mayur Rajeshwar | | | | | |
| 3 | Bengar Prashant Sahebrao | 4 | 4 | | 2 | |
| 4 | Bhanje Shriram Uttamrao | 4 | | 3 | 2 | |
| 5 | Bisen Akanksha Surajsingh | | 3 | | | |
| 6 | Bodhane Maroti Bhumanna | 2 | 4 | | | 2 |
| 7 | Boinwad Prajakta Shesherao | | | | | |
| 8 | Bomble Rutuja Satish | 3 | 3 | | 1 | |
| 9 | Budruk Somnath Madhukar | 3 | 2 | | 2 | |
| 10 | Chavan Vikas Madhukar | 3 | 4 | | | 2 |
| 11 | Chepurwar Aishwarya Marotrao | | | | | |
| 12 | Davare Prashik Kakasaheb | | | | | |
| 13 | Deshmukh Rushali Madhukar | | | | | |
| 14 | Deshmukh Vishwajit Vijaykumar | 3 | | | | |
| 15 | Duthade Vikas Bhimrao | | | | | |
| 16 | Gadgile Manisha Chimnaji | | | | | |
| 17 | Gaikwad Sachin Bajirao | 5 | 4 | | | 4 |
| 18 | Gajbhar Rushikesh Maheshvar | | | | | |
| 19 | Gangatir Rameshwar Anandrao | | | | | |
| 20 | Ghorband Shubham Ramrao | 2 | 2 | | | 3 |
| 21 | Ghuge Vaishnavi Ramkishan | 5 | | 3 | | |
| 22 | Giri Vaishnavi Shivprasad | 4 | 4 | 4 | | |
| 23 | Gore Kiran Vishwambhar | | | | | |
| 24 | Gudewar Sainath Ganesh | | | | | |
| 25 | Hake Sudarshana Shankarrao | | | | | |
| 26 | Harale Manoj Ashok | 2 | | 1 | | |
| 27 | Honshette Suraj Madhavrao | 2 | | | | |
| 28 | Hussekar Mayuri Santosh | 4 | 5 | 5 | | |
| 29 | Ingole Rushikesh Bhagwanrao | 3 | 3 | 3 | | |
| 30 | Irewad Shrinivas Balaji | | | | | |
| 31 | Jaiswal Deven Satish | | 5 | 5 | 5 | |
| 32 | Jondhale Rituraj Sanjay | | | | | |
| 33 | Joshi Kartiki Pramod | 5 | | | 5 | 5 |
| 34 | Kadam Vaibhav Rangnathrao | 4 | 4 | | 4 | |
| 35 | Kamble Yogesh Baburao | | | | | |
| 36 | Kandurke Aishwarya Hanmantrao | 5 | 4 | | | 3 |
| 37 | Katkemod Omsai Santram | 4 | 4 | 5 | | |
| 38 | Khyade Sonal Pandit | 4 | | | 4 | |
| 39 | Kulkarni Atharv Santoshrao | 2 | 2 | | 3 | |


IQAC
Coordinator



| | | | | | | |
|----|----------------------------------|---|---|---|---|---|
| 40 | Kulkarni Rushikesh Shashikant | | | | | |
| 41 | Kulkarni Sumant Santosh | 4 | 4 | | | 3 |
| 42 | Labde Divya Govindrao | 4 | | 3 | 5 | |
| 43 | Lone Arti Sanjay | | | | | |
| 44 | Madanwad Sonali Suryakant | 4 | | 5 | 5 | |
| 45 | Magare Prashant Sambhaji | 3 | 3 | | | |
| 46 | Mahajan Shruti Panditrao | 2 | 1 | 2 | | |
| 47 | Mirashe Rupesh Suresh | | | | | |
| 48 | Mule Harish Rama | 4 | 4 | 2 | | |
| 49 | Paikrao Akshay Santosh | 4 | 3 | | 2 | |
| 50 | Panchal Sandhya Eknathrao | | 3 | | | |
| 51 | Pande Gayatri Sanjay | 3 | 2 | | 2 | |
| 52 | Pandit Harshad Ambadas | | | 1 | | |
| 53 | Patangrao Bhagyashri Prasad | 3 | 2 | | 2 | |
| 54 | Patil Dharati Rajiv | 5 | 4 | | 3 | |
| 55 | Pawar Dattatray Bapuji | 5 | 4 | 4 | | |
| 56 | Pawar Nikita Shankar | 5 | 5 | | | 4 |
| 57 | Pawar Pallavi Digambarrao | 4 | 3 | | 3 | |
| 58 | Pawar Pallavi Pralhad | 5 | 5 | | 1 | |
| 59 | Pawar Pranjal Pradip | 3 | 1 | | | |
| 60 | Pawar Shital Jalbaji | | | | | |
| 61 | Pawar Somesh Kishor | | | | | |
| 62 | Pawar Vaishnavi Rajaram | | | | | |
| 63 | Rathod Pushpak Sudhakar | | | | | |
| 64 | Rathod Veena Bharat | | 2 | | 1 | |
| 65 | Renke Shivam Raghunath | 5 | 4 | | | |
| 66 | Sangamkar Shashank Shrinivas | 3 | 4 | 3 | | |
| 67 | Sawatkar Bhujang Suresh | 4 | 4 | | | 2 |
| 68 | Shahu Paramjeetkaur Daljeetsingh | 5 | 5 | | 5 | |
| 69 | Shembale Vedika Dattatray | 4 | 4 | 5 | | |
| 70 | Shinde Sudarshan Dayanand | 5 | 3 | | | |
| 71 | Shinde Tanaya Bhaskar | 1 | | | | |
| 72 | Sobiya Anam Mohd Abdul Wasey | 3 | 2 | | 1 | |
| 73 | Sontakke Rameshwar Anandrao | 4 | 4 | | | 2 |
| 74 | Sontakke Urmila Sundar | 4 | 5 | | | 2 |
| 75 | Suryawanshi Shivani Baburao | 1 | 2 | 1 | | |
| 76 | Syeda Sana Fatema Syed Iqbal Ali | 4 | 4 | | 3 | |
| 77 | Thorat Dipali Sudas | 2 | 3 | | 2 | |
| 78 | Udhane Anuja Narayan | 4 | 4 | 3 | | |
| 79 | Vinkare Siddhant Mukinda | | 4 | | | |
| 80 | Warad Mahesh Mallikarjun | 4 | 4 | | | |
| 81 | Yangade Pranav Ramrao | | | | | |
| 82 | Yemmewar Madhusudan Nagesh | | | | | |
| 83 | Yengade Akanksha Balaji | 3 | 3 | 2 | | |


IQAC
 Coordinator



| | CCBT-1E-1 | CCBT-1E-1 | CCBT-1E-1 | | |
|---|-----------|-----------|-----------|-------|-------|
| No. of Students attempted the question | 53 | 47 | 19 | 23 | 11 |
| No. of students scored more than or equals to threshold | 43 | 37 | 13 | 11 | 6 |
| No. of students scored more than or equals to threshold, in % | 81.13 | 78.72 | 68.42 | 47.83 | 54.55 |
| Course Outcomes Attainment= | 3 | 3 | 3 | 1 | 2 |

| | |
|----------------------|-----|
| CCBT-1E-1 Attainment | 3 |
| | 1.5 |
| CCBT-1E-3 Attainment | NA |
| CCBT-1E-4 Attainment | NA |


 IQAC
 Coordinator



Computation of Course Outcomes Attainment / Periodic Test-II

| | |
|--------------------|---------------------------|
| Subject: | r DNA technology- CCBT-1E |
| Course Instructor: | Shinde S. P. |

| | |
|--------|---------|
| Class: | TY BT |
| A.Y. | 2022-23 |

| | | Threshold= | | 45 | % | |
|---|-------------------------------|------------|-----------|-----------|-----------|-----------|
| Course Outcomes | | CCBT-1E-3 | CCBT-1E-3 | CCBT-1E-4 | CCBT-1E-4 | CCBT-1E-4 |
| Maximum Marks | | 5 | 5 | 5 | 5 | 5 |
| Minimum expected marks as per threshold | | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 |
| Roll No | Name of student | Q.1 | Q.2 | Q.3 | Q.4 | Q.5 |
| 1 | Adkine Rohit Bhujang | | | | | |
| 2 | Bengar Mayur Rajeshwar | | | | | |
| 3 | Bengar Prashant Sahebrao | 2 | | 5 | 3 | |
| 4 | Bhanje Shriram Uttamrao | | 4 | 5 | 3 | |
| 5 | Bisen Akanksha Surajsingh | | | | | |
| 6 | Bodhane Maroti Bhumanna | | 4 | 3 | 5 | |
| 7 | Boinwad Prajakta Shesherao | | 1 | 3 | | |
| 8 | Bomble Rutuja Satish | | 5 | 5 | 4 | |
| 9 | Budruk Somnath Madhukar | | 2 | 3 | | |
| 10 | Chavan Vikas Madhukar | | | 5 | 4 | |
| 11 | Chepurwar Aishwarya Marotrao | | 2 | | | |
| 12 | Davare Prashik Kakasaheb | | 2 | | | |
| 13 | Deshmukh Rushali Madhukar | | | 5 | 4 | 4 |
| 14 | Deshmukh Vishwajit Vijaykumar | | | 5 | | |
| 15 | Duthade Vikas Bhimrao | | | | | |
| 16 | Gadgile Manisha Chimnaji | 4 | | | 3 | 3 |
| 17 | Gaikwad Sachin Bajirao | 4 | | 3 | 4 | |
| 18 | Gajbhar Rushikesh Maheshvar | | | | | |
| 19 | Gangatir Rameshwar Anandrao | | | | | |
| 20 | Ghorband Shubham Ramrao | | | 3 | | |
| 21 | Ghughe Vaishnavi Ramkishan | | | | | |
| 22 | Giri Vaishnavi Shivprasad | | | | | |
| 23 | Gore Kiran Vishwambhar | | 4 | 5 | 4 | |
| 24 | Gudewar Sainath Ganesh | | | | | |
| 25 | Hake Sudarshana Shankarrao | | | 1 | 4 | 4 |
| 26 | Harale Manoj Ashok | | | 3 | | |
| 27 | Honshette Suraj Madhavrao | | | | | |
| 28 | Hussekar Mayuri Santosh | 5 | 3 | 5 | | |
| 29 | Ingole Rushikesh Bhagwanrao | | | 4 | 4 | 3 |
| 30 | Irewad Shriniwas Balaji | | | | | |
| 31 | Jaiswal Deven Satish | | | | | |
| 32 | Jondhale Rituraj Sanjay | | | | | |
| 33 | Joshi Kartiki Pramod | | 5 | 5 | 4 | |
| 34 | Kadam Vaibhav Rangnathrao | 5 | | 5 | 4 | |
| 35 | Kamble Yogesh Baburao | 1 | | 2 | | |
| 36 | Kandurke Aishwarya Hanmantrao | 5 | 5 | | 4 | |
| 37 | Katkemod Omsai Santram | 3 | | 5 | 5 | |
| 38 | Khyade Sonal Pandit | | | | | |
| 39 | Kulkarni Atharv Santoshrao | | | | | |
| 40 | Kulkarni Rushikesh Shashikant | | | | | |
| 41 | Kulkarni Sumant Santosh | | | 5 | 3 | |
| 42 | Labde Divya Govindrao | | 5 | 5 | 4 | |
| 43 | Lone Arti Sanjay | | | | | |
| 44 | Madanwad Sonali Suryakant | 3 | 5 | 5 | | |

| | | | | | | |
|----|---|-----------|-----------|-----------|-----------|-----------|
| 45 | Magare Prashant Sambhaji | | | 4 | | |
| 46 | Mahajan Shruti Panditrao | | | 2 | 1 | |
| 47 | Mirashe Rupesh Suresh | | | | | |
| 48 | Mule Harish Rama | | | | | |
| 49 | Paikrao Akshay Santosh | 4 | | 2 | 5 | |
| 50 | Panchal Sandhya Eknathrao | | | | | |
| 51 | Pande Gayatri Sanjay | | | | | |
| 52 | Pandit Harshad Ambadas | 1 | | 2 | | |
| 53 | Patangrao Bhagyashri Prasad | | | 3 | 4 | |
| 54 | Patil Dharati Rajiv | | 5 | 5 | 5 | |
| 55 | Pawar Dattatray Bapuji | | | 5 | 5 | 5 |
| 56 | Pawar Nikita Shankar | 2 | | 5 | 5 | |
| 57 | Pawar Pallavi Digambarrao | | | 5 | 4 | |
| 58 | Pawar Pallavi Pralhad | | 2 | 4 | 4 | |
| 59 | Pawar Pranjali Pradip | | | 4 | | |
| 60 | Pawar Shital Jalbaji | | | | | |
| 61 | Pawar Somesh Kishor | 2 | | | | |
| 62 | Pawar Vaishnavi Rajaram | | | | | |
| 63 | Rathod Pushpak Sudhakar | | 2 | | 1 | |
| 64 | Rathod Veena Bharat | | 3 | 1 | | |
| 65 | Renke Shivam Raghunath | | 4 | | | |
| 66 | Sangamkar Shashank Shrinivas | 4 | 4 | | | |
| 67 | Sawatkar Bhujang Suresh | 4 | | 4 | | |
| 68 | Shahu Paramjeetkaur Daljeetsingh | 4 | | 5 | 5 | |
| 69 | Shembale Vedika Dattatray | 5 | 5 | | 4 | |
| 70 | Shinde Sudarshan Dayanand | 2 | | 4 | | 1 |
| 71 | Shinde Tanaya Bhaskar | 1 | | 4 | 4 | |
| 72 | Sobiya Anam Mohd Abdul Wasey | 1 | 1 | 3 | | |
| 73 | Sontakke Rameshwar Anandrao | | | 5 | 4 | |
| 74 | Sontakke Urmila Sundar | | | | 3 | |
| 75 | Suryawanshi Shivani Baburao | 1 | 2 | 3 | | |
| 76 | Syeda Sana Fatema Syed Iqbal Ali | 4 | | 4 | 2 | |
| 77 | Thorat Dipali Sudas | | | | | |
| 78 | Udhane Anuja Narayan | 5 | 4 | 3 | | |
| 79 | Vinkare Siddhant Mukinda | 4 | | 4 | | 3 |
| 80 | Warad Mahesh Mallikarjun | | 3 | 3 | 3 | |
| 81 | Yangade Pranav Ramrao | | | | | |
| 82 | Yemmewar Madhusudan Nagesh | | | | | |
| 83 | Yengade Akanksha Balaji | 4 | 5 | 3 | | |
| | | CCBT-1E-3 | CCBT-1E-3 | CCBT-1E-4 | CCBT-1E-4 | CCBT-1E-4 |
| | No. of Students attempted the question | 25 | 25 | 47 | 33 | 7 |
| | No. of students scored more than or equals to threshold | 16 | 17 | 41 | 30 | 6 |
| | No. of students scored more than or equals to threshold, in % | 64.00 | 68.00 | 87.23 | 90.91 | 85.71 |
| | Course Outcomes Attainment= | 3 | 3 | 3 | 3 | 3 |

| | |
|----------------------|----|
| CCBT-1E-1 Attainment | NA |
| CCBT-1E-2 Attainment | NA |
| CCBT-1E-3 Attainment | 3 |
| CCBT-1E-4 Attainment | 3 |

IQAC
Coordinator

MGM'S College of Computer Science and IT Nanded
Department of Biotechnology and Bioinformatics

Computation of Course Outcomes Attainment End Semester Exam

| | |
|--------------------|---------------------------|
| Subject: | r DNA technology- CCBT-1E |
| Instructor: | Shinde S. P. |

| | |
|---------------|---------|
| Class: | TY BT |
| A.Y. | 2022-23 |

| Course Outcomes | | Threshold= | | | |
|---|-------------------------------|------------|-----------|-----------|-----------|
| | | CCBT-1E-1 | CCBT-1E-2 | CCBT-1E-3 | CCBT-1E-4 |
| Maximum Marks assigned to each question | | 18.75 | 18.75 | 18.75 | 18.75 |
| Minimum Expected Marks | | 8.4375 | 8.4375 | 8.4375 | 8.4375 |
| Roll No | Name of student | Q.1 | Q.2 | Q.3 | Q.4 |
| 1 | Adkine Rohit Bhujang | 7.5 | 7.5 | 7.5 | 7.5 |
| 2 | Bengar Mayur Rajeshwar | 7.75 | 7.75 | 7.75 | 7.75 |
| 3 | Bengar Prashant Sahebrao | 13 | 13 | 13 | 13 |
| 4 | Bhanje Shriram Uttamrao | 11 | 11 | 11 | 11 |
| 5 | Bisen Akanksha Surajsingh | 1.75 | 1.75 | 1.75 | 1.75 |
| 6 | Bodhane Maroti Bhumanna | 12.25 | 12.25 | 12.25 | 12.25 |
| 7 | Boinwad Prajakta Shesherao | 9.25 | 9.25 | 9.25 | 9.25 |
| 8 | Bomble Rutuja Satish | 10.5 | 10.5 | 10.5 | 10.5 |
| 9 | Budruk Somnath Madhukar | 7.75 | 7.75 | 7.75 | 7.75 |
| 10 | Chavan Vikas Madhukar | 12.5 | 12.5 | 12.5 | 12.5 |
| 11 | Chepurwar Aishwarya Marotrao | | | | |
| 12 | Davare Prashik Kakasaheb | 1.75 | 1.75 | 1.75 | 1.75 |
| 13 | Deshmukh Rushali Madhukar | 8.75 | 8.75 | 8.75 | 8.75 |
| 14 | Deshmukh Vishwajit Vijaykumar | | | | |
| 15 | Duthade Vikas Bhimrao | | | | |
| 16 | Gadgile Manisha Chimnaji | 8.75 | 8.75 | 8.75 | 8.75 |
| 17 | Gaikwad Sachin Bajirao | 13 | 13 | 13 | 13 |
| 18 | Gajbhar Rushikesh Maheshvar | 7.5 | 7.5 | 7.5 | 7.5 |
| 19 | Gangatir Rameshwar Anandrao | 4.75 | 4.75 | 4.75 | 4.75 |
| 20 | Ghorband Shubham Ramrao | 7.5 | 7.5 | 7.5 | 7.5 |
| 21 | Ghuge Vaishnavi Ramkishan | 9.25 | 9.25 | 9.25 | 9.25 |
| 22 | Giri Vaishnavi Shivprasad | 0 | 0 | 0 | 0 |
| 23 | Gore Kiran Vishwambhar | 7.5 | 7.5 | 7.5 | 7.5 |
| 24 | Gudewar Sainath Ganesh | | | | |
| 25 | Hake Sudarshana Shankarrao | 7.75 | 7.75 | 7.75 | 7.75 |
| 26 | Harale Manoj Ashok | 8.5 | 8.5 | 8.5 | 8.5 |
| 27 | Honshette Suraj Madhavrao | 5 | 5 | 5 | 5 |
| 28 | Hussekar Mayuri Santosh | 11.75 | 11.75 | 11.75 | 11.75 |
| 29 | Ingole Rushikesh Bhagwanrao | 11.75 | 11.75 | 11.75 | 11.75 |
| 30 | Irewad Shriniwas Balaji | 8 | 8 | 8 | 8 |
| 31 | Jaiswal Deven Satish | 12.5 | 12.5 | 12.5 | 12.5 |
| 32 | Jondhale Rituraj Sanjay | 3.25 | 3.25 | 3.25 | 3.25 |


IQAC
Coordinator



| | | | | | |
|----|----------------------------------|-------|-------|-------|-------|
| 33 | Joshi Kartlki Pramod | 11.5 | 11.5 | 11.5 | 11.5 |
| 34 | Kadam Vaibhav Rangnathrao | 11.5 | 11.5 | 11.5 | 11.5 |
| 35 | Kamble Yogesh Baburao | 8.25 | 8.25 | 8.25 | 8.25 |
| 36 | Kandurke Aishwarya Hanmantrao | 14 | 14 | 14 | 14 |
| 37 | Katkemod Omsal Santram | 14.5 | 14.5 | 14.5 | 14.5 |
| 38 | Khyade Sonal Pandit | 7.5 | 7.5 | 7.5 | 7.5 |
| 39 | Kulkarni Atharv Santoshrao | 7.5 | 7.5 | 7.5 | 7.5 |
| 40 | Kulkarni Rushikesh Shashikant | 7.5 | 7.5 | 7.5 | 7.5 |
| 41 | Kulkarni Sumant Santosh | 10 | 10 | 10 | 10 |
| 42 | Labde Divya Govindrao | 14 | 14 | 14 | 14 |
| 43 | Lone Artl Sanjay | 10.25 | 10.25 | 10.25 | 10.25 |
| 44 | Madanwad Sonali Suryakant | 10.25 | 10.25 | 10.25 | 10.25 |
| 45 | Magare Prashant Sambhaji | 8 | 8 | 8 | 8 |
| 46 | Mahajan Shruti Panditrao | 8 | 8 | 8 | 8 |
| 47 | Mirashe Rupesh Suresh | 7.5 | 7.5 | 7.5 | 7.5 |
| 48 | Mule Harish Rama | 8.5 | 8.5 | 8.5 | 8.5 |
| 49 | Paikrao Akshay Santosh | 9.25 | 9.25 | 9.25 | 9.25 |
| 50 | Panchal Sandhya Eknathrao | 8.5 | 8.5 | 8.5 | 8.5 |
| 51 | Pande Gayatri Sanjay | 4 | 4 | 4 | 4 |
| 52 | Pandit Harshad Ambadas | 5.75 | 5.75 | 5.75 | 5.75 |
| 53 | Patangrao Bhagyashri Prasad | 8.5 | 8.5 | 8.5 | 8.5 |
| 54 | Patil Dharati Rajiv | 14.5 | 14.5 | 14.5 | 14.5 |
| 55 | Pawar Dattatray Bapuji | 12 | 12 | 12 | 12 |
| 56 | Pawar Nikita Shankar | 13 | 13 | 13 | 13 |
| 57 | Pawar Pallavi Digambarrao | 9.25 | 9.25 | 9.25 | 9.25 |
| 58 | Pawar Pallavi Pralhad | 9.5 | 9.5 | 9.5 | 9.5 |
| 59 | Pawar Pranjal Pradip | 9.25 | 9.25 | 9.25 | 9.25 |
| 60 | Pawar Shital Jalbaji | 3 | 3 | 3 | 3 |
| 61 | Pawar Somesh Kishor | 5.25 | 5.25 | 5.25 | 5.25 |
| 62 | Pawar Vaishnavi Rajaram | | | | |
| 63 | Rathod Pushpak Sudhakar | 5.25 | 5.25 | 5.25 | 5.25 |
| 64 | Rathod Veena Bharat | 8.25 | 8.25 | 8.25 | 8.25 |
| 65 | Renke Shivam Raghunath | 11 | 11 | 11 | 11 |
| 66 | Sangamkar Shashank Shrinivas | 9 | 9 | 9 | 9 |
| 67 | Sawatkar Bhujang Suresh | 10.5 | 10.5 | 10.5 | 10.5 |
| 68 | Shahu Paramjeetkaur Daljeetsingh | 7.5 | 7.5 | 7.5 | 7.5 |
| 69 | Shembale Vedika Dattatray | 9.75 | 9.75 | 9.75 | 9.75 |
| 70 | Shinde Sudarshan Dayanand | 7.75 | 7.75 | 7.75 | 7.75 |
| 71 | Shinde Tanaya Bhaskar | 9.75 | 9.75 | 9.75 | 9.75 |
| 72 | Sobiya Anam Mohd Abdul Wasey | 7.5 | 7.5 | 7.5 | 7.5 |
| 73 | Sontakke Rameshwar Anandrao | 7.75 | 7.75 | 7.75 | 7.75 |
| 74 | Sontakke Urmila Sundar | 10.5 | 10.5 | 10.5 | 10.5 |
| 75 | Suryawanshi Shivani Baburao | 7.5 | 7.5 | 7.5 | 7.5 |


IQAC
 Coordinator



| | | | | | |
|----|---|-----------|-----------|-----------|-----------|
| 76 | Syeda Sana Fatema Syed Iqbal Ali | 8.75 | 8.75 | 8.75 | 8.75 |
| 77 | Thorat Dipali Sudas | 10.75 | 10.75 | 10.75 | 10.75 |
| 78 | Udhane Anuja Narayan | 8 | 8 | 8 | 8 |
| 79 | Vinkare Siddhant Mukinda | 7.5 | 7.5 | 7.5 | 7.5 |
| 80 | Warad Mahesh Mallikarjun | 11.5 | 11.5 | 11.5 | 11.5 |
| | Yangade Pranav Ramrao | 11 | 11 | 11 | 11 |
| | Yemmewar Madhusudan Nagesh | 8.5 | 8.5 | 8.5 | 8.5 |
| 81 | Yengade Akanksha Balaji | 9.25 | 9.25 | 9.25 | 9.25 |
| | | CCBT-IE-1 | CCBT-IE-2 | CCBT-IE-3 | CCBT-IE-4 |
| | No. of Students attempted the question | 78 | 78 | 78 | 78 |
| | No. of students scored more than or equals to threshold | 44 | 44 | 44 | 44 |
| | No. of students scored more than or equals to threshold, in % | 56.41 | 56.41 | 56.41 | 56.41 |
| | Course Outcomes Attainment= | 2 | 2 | 2 | 2 |

Note:

For CO attainment through End semester exam, assume that, No. of COs= No. of Questions


IQAC
Coordinator



MGM's College Computer Science and IT, Nanded
Department of Biotechnology & Bioinformatics
Analysis of Course Exit Survey

| | | | |
|--------------------|---------------------------|---------------|---------|
| Subject: | r DNA technology- CCBT-1E | Class: | TY BT |
| Instructor: | Shinde S. P. | A.Y. | 2022-23 |

Achievement Levels:
Strongly Agree (3), Moderately Agree (2), Slightly Agree (1)

| Roll No. | Name of student | Responses from students | | | |
|----------|-------------------------------|--|---|--|---|
| | | CCBT-1E-1<understand basic Knowledge of r DNA> | CCBT-1E-2<application of genetic engineering .> | CCBT-1E-3 <skills in DNA extraction, purification, and quantification> | CCBT-1E-4 < basic principles of recombinant DNA technology> |
| 1 | Adkine Rohit Bhujang | 3 | 3 | 2 | 3 |
| 2 | Bengar Mayur Rajeshwar | | | | |
| 3 | Bengar Prashant Sahebrao | 3 | 3 | 2 | 3 |
| 4 | Bhanje Shriram Uttamrao | 3 | 3 | 3 | 3 |
| 5 | Bisen Akanksha Surajsingh | 2 | 3 | 3 | 3 |
| 6 | Bodhane Maroti Bhumanna | 3 | 3 | 3 | 3 |
| 7 | Boinwad Prajakta Shesherao | | | | |
| 8 | Bomble Rutuja Satish | 3 | 3 | 3 | 3 |
| 9 | Budruk Somnath Madhukar | 2 | 1 | 3 | 1 |
| 10 | Chavan Vikas Madhukar | 2 | 1 | 1 | 2 |
| 11 | Chepurwar Aishwarya Marotrao | | | | |
| 12 | Davare Prashik Kakasaheb | 3 | 2 | 3 | 3 |
| 13 | Deshmukh Rushali Madhukar | 3 | 3 | 3 | 3 |
| 14 | Deshmukh Vishwajit Vijaykumar | | | | |
| 15 | Duthade Vikas Bhimrao | | | | |
| 16 | Gadgile Manisha Chimnaji | 2 | 3 | 2 | 2 |
| 17 | Gaikwad Sachin Bajirao | 3 | 3 | 3 | 3 |
| 18 | Gajbhar Rushikesh Maheshvar | | | | |
| 19 | Gangatir Rameshwar Anandrao | | | | |
| 20 | Ghorband Shubham Ramrao | 3 | 2 | 2 | 2 |
| 21 | Ghuge Vaishnavi Ramkishan | 2 | 1 | 2 | 3 |
| 22 | Giri Vaishnavi Shivprasad | 2 | 2 | 3 | 1 |
| 23 | Gore Kiran Vishwambhar | 3 | 3 | 2 | 3 |
| 24 | Gudewar Sainath Ganesh | | | | |
| 25 | Hake Sudarshana Shankarrao | 3 | 1 | 2 | 3 |
| 26 | Harale Manoj Ashok | 2 | 2 | 2 | 2 |


IQAC
Coordinator



| | | | | | |
|----|----------------------------------|---|---|---|---|
| 27 | Honshette Suraj Madhavrao | 3 | 2 | 2 | 2 |
| 28 | Hussekar Mayuri Santosh | 3 | 3 | 3 | 3 |
| 29 | Ingole Rushikesh Bhagwanrao | 3 | 3 | 3 | 3 |
| 30 | Irewad Shriniwas Balaji | 3 | 3 | 3 | 3 |
| 31 | Jaiswal Deven Satish | 3 | 3 | 2 | 2 |
| 32 | Jondhale Rituraj Sanjay | | | | |
| 33 | Joshi Kartiki Pramod | 3 | 3 | 2 | 3 |
| 34 | Kadam Vaibhav Rangnathrao | 3 | 3 | 3 | 3 |
| 35 | Kamble Yogesh Baburao | | | | |
| 36 | Kandurke Aishwarya Hanmantrao | 3 | 3 | 2 | 3 |
| 37 | Katkemod Omsai Santram | 3 | 3 | 3 | 3 |
| 38 | Khyade Sonal Pandit | 2 | 1 | 1 | 2 |
| 39 | Kulkarni Atharv Santoshrao | 3 | 2 | 2 | 3 |
| 40 | Kulkarni Rushikesh Shashikant | 3 | 2 | 2 | 2 |
| 41 | Kulkarni Sumant Santosh | 3 | 3 | 2 | 3 |
| 42 | Labde Divya Govindrao | 3 | 3 | 2 | 3 |
| 43 | Lone Arti Sanjay | | | | |
| 44 | Madanwad Sonali Suryakant | 2 | 1 | 2 | 3 |
| 45 | Magare Prashant Sambhaji | 3 | 3 | 3 | 3 |
| 46 | Mahajan Shruti Panditrao | | | | |
| 47 | Mirashe Rupesh Suresh | 2 | 3 | 1 | 2 |
| 48 | Mule Harish Rama | 3 | 2 | 3 | 3 |
| 49 | Paikrao Akshay Santosh | 3 | 2 | 3 | 3 |
| 50 | Panchal Sandhya Eknathrao | 2 | 2 | 1 | 2 |
| 51 | Pande Gayatri Sanjay | | | | |
| 52 | Pandit Harshad Ambadas | | | | |
| 53 | Patangrao Bhagyashri Prasad | 3 | 1 | 1 | 3 |
| 54 | Patil Dharati Rajiv | 3 | 3 | 3 | 3 |
| 55 | Pawar Dattatray Bapuji | 3 | 3 | 3 | 3 |
| 56 | Pawar Nikita Shankar | | | | |
| 57 | Pawar Pallavi Digambarrao | 1 | 3 | 2 | 2 |
| 58 | Pawar Pallavi Pralhad | 3 | 2 | 3 | 1 |
| 59 | Pawar Pranjal Pradip | 2 | 2 | 2 | 2 |
| 60 | Pawar Shital Jalbaji | | | | |
| 61 | Pawar Somesh Kishor | 3 | 2 | 3 | 2 |
| 62 | Pawar Vaishnavi Rajaram | | | | |
| 63 | Rathod Pushpak Sudhakar | 3 | 2 | 3 | 3 |
| 64 | Rathod Veena Bharat | 2 | 1 | 2 | 3 |
| 65 | Renke Shivam Raghunath | 3 | 2 | 3 | 3 |
| 66 | Sangamkar Shashank Shrinivas | 3 | 2 | 1 | 3 |
| 67 | Sawatkar Bhujang Suresh | 3 | 3 | 2 | 3 |
| 68 | Shahu Paramjeetkaur Daljeetsingh | 3 | 3 | 3 | 3 |
| 69 | Shembale Vedika Dattatray | 2 | 3 | 2 | 3 |
| 70 | Shinde Sudarshan Dayanand | 3 | 3 | 2 | 3 |
| 71 | Shinde Tanaya Bhaskar | 2 | 2 | 1 | 2 |


IQAC
 Coordinator



| | | | | | |
|-------------------------------------|----------------------------------|----|----|----|----|
| 72 | Sobiya Anam Mohd Abdul Wasey | | | | |
| 73 | Sontakke Rameshwar Anandrao | 3 | 2 | 3 | 3 |
| 74 | Sontakke Urmila Sundar | 3 | 2 | 3 | 3 |
| 75 | Suryawanshi Shivani Baburao | 2 | 1 | 1 | 2 |
| 76 | Syeda Sana Fatema Syed Iqbal Ali | | | | |
| 77 | Thorat Dipali Sudas | 3 | 3 | 3 | 3 |
| 78 | Udhane Anuja Narayan | 3 | 3 | 3 | 3 |
| 79 | Vinkare Siddhant Mukinda | 3 | 3 | 3 | 3 |
| 80 | Warad Mahesh Mallikarjun | 3 | 2 | 2 | 2 |
| 81 | Yangade Pranav Ramrao | | | | |
| 82 | Yemmewar Madhusudan Nagesh | 3 | 3 | 3 | 3 |
| 83 | Yengade Akanksha Balaji | 3 | 3 | 3 | 3 |
| Total Number of students responded= | | 63 | 63 | 63 | 63 |

| | CCBT-1E-1 | CCBT-1E-2 | CCBT-1E-3 | CCBT-1E-4 |
|---|-----------|-----------|-----------|-----------|
| Number of students given rating (1) | 1 | 9 | 8 | 3 |
| Number of students given rating (2) | 16 | 20 | 24 | 16 |
| Number of students given rating (3) | 46 | 34 | 31 | 44 |
| Indirect CO Attainment (Average Rating) | 2.71 | 2.40 | 2.37 | 2.65 |


IQAC
 Coordinator





MGM's College of Computer Science & Information Technology, Nanded
Department of Biothcnology & Bioinformatics

| | | | |
|-------------|---------------------------|--------|---------|
| Subject: | r DNA technology- CCBT-1E | Class: | TY BT |
| Instructor: | Shinde S. P. | A.Y. | 2022-23 |

| Method | Type | Assessment Tool | CCBT-1E-1 | CCBT-1E-2 | CCBT-1E-3 | CCBT-1E-4 |
|---|--------------------|-----------------------------|--------------|-------------|--------------|-------------|
| Direct Attainment (80 %) | Internal (25%) | Periodic Test-I (50%) | 3 | 1.5 | | |
| | | Periodic Test-II (50%) | | | 3 | 3 |
| | External(75%) | End Semester Exam (100%) | 2 | 2 | 2 | 2 |
| Indirect Attainment (20%) | Course Exit Survey | | 2.71 | 2.40 | 2.37 | 2.65 |
| Final Course Outcomes Attainment = | | | 2.422 | 2.06 | 2.354 | 2.41 |

Final CO_i attainment = 0.8 { 0.2(0.5 x PT-I Att. + 0.5 x PT-II Att.) +0.8 (0.25 x MSE Att. + 0.75 x ESE Att.)}
+ 0.2 x Indirect Att. through Course Exit Survey


IQAC
Coordinator





MGM's College of Computer Science & IT, Nanded
 Department of Biotechnology & Bioinformatics
 Computation of Program Outcomes (POs) Attainment

| | |
|--------------------|---------------------------|
| Subject: | r DNA technology- CCBT-1E |
| Course Instructor: | Shinde S. P. |

| | |
|--------|---------|
| Class: | TY BT |
| A.Y. | 2022-23 |

∴ PO/PSO attainment = (Average of attainments of relevant COs) x Scale Factor

Scale Factor = Desired Mapping Average (Mapping Strength) / Maximum Possible Mapping

CO-PO Mapping

| CO Id | PO-1 | PO-2 | PO-3 | PO-4 | PO-5 | PO-6 | PO-7 | PO-8 | PO-9 | PO-10 | PO-11 | PO-12 | PSO-1 | PSO-2 | PSO-3 |
|-----------------------------------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|
| CCBT-1E-1 | 1 | 2 | 2 | | | | | | | | | | | | |
| CCBT-1E-2 | | 3 | 1 | | | | | | | | | | | | |
| CCBT-1E-3 | 2 | 2 | 1 | | | | | | | | | | | | |
| CCBT-1E-4 | | 1 | 1 | 1 | | | | | | | | | | | |
| Avg Mapping (Mapping Strength) | 1.5 | 2 | 1.25 | 1 | | | | | | | | | | | |
| PO Attainment | | | | | | | | | | | | | | | |

| PO/PSOs | Relevant COs |
|---------|----------------------|
| PO-1 | CCBT-1E-1, CCBT-1E-3 |
| PO-2 | All COs |
| PO-3 | All COs |
| PO-4 | CCBT-1E-4 |

| PO/PSOs | Relevant COs | PO Attainment of Cos |
|---------|----------------------|----------------------|
| PO-1 | CCBT-1E-1, CCBT-1E-3 | 1.2 |
| PO-2 | All COs | 1.54 |
| PO-3 | All COs | 0.9625 |
| PO-4 | CCBT-1E-4 | 0.80333 |


IQAC
 Coordinator

