



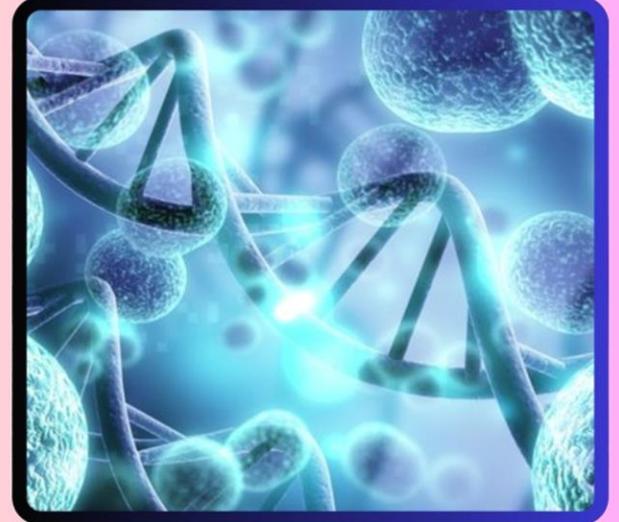
**सेवाकालीन प्रशिक्षण
2023-24
स्नातकोत्तर शिक्षक
(जीवविज्ञान एवं जैव-प्रौद्योगिकी)**



**In-Service Course
(ISC)**

2023-24

**For Post Graduate Teacher
(Biology & Bio-Technology)**



**केन्द्रीय विद्यालय संगठन,
आं.शि.प्र.सं, मुंबई
KVS, ZIET,
Mumbai**



zietmumbai@gmail.com

<https://zietmumbai.kvs.gov.in>

OUR CHIEF PATRONS



Mrs. Nidhi Pandey, IIS
Commissioner



Sh. N. R. Murali
Joint Commissioner (Academics)



Ms. Chandana Mandal
Joint Commissioner (Training)



PATRON
Mrs. Shahida Parveen
Deputy Commissioner &
Course Director



Co-Patron
Mr. S. Lakshmi Narayanan,
Associate Course Director



Mr. T. Narayan Dhas
Resource Person



Mr. S. N. Ojha
Resource Person

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ACKNOWLEDGEMENT

We extend our heartfelt gratitude to the esteemed personalities whose unwavering support and guidance have been instrumental in the successful realization of the In-Service Course for Post Graduate Teachers (PGT) in Biology and Biotechnology – Spell II, an initiative aimed at advancing the teaching landscape across India.

Ms. Nidhi Pandey, IIS

Commissioner, Kendriya Vidyalaya Sangathan, New Delhi

Ms. Chandana Mandal

Joint Commissioner (Trg.), Kendriya Vidyalaya Sangathan, New Delhi

Mrs. Shahida Parveen

Deputy Commissioner & Course Director ZIET Mumbai, Kendriya Vidyalaya Sangathan

Their invaluable expertise, visionary leadership, and unwavering commitment have been pivotal in shaping this eMagazine endeavor. Their guidance and support have been a beacon, steering us towards the creation of a platform that fosters pedagogical excellence and empowers educators in the domains of Biology and Biotechnology.

We acknowledge their exemplary contributions and express our sincere appreciation for their encouragement and belief in our collective endeavor to elevate the standards of education for the betterment of the teaching community.

We express our heartfelt gratitude to the esteemed personalities and teams whose unwavering support, dedication, and expertise have been indispensable in the success of the In-Service Course for Post Graduate Teachers (PGT) in Biology and Biotechnology – Spell II, a pioneering initiative aimed at revolutionizing teaching practices across India.

Associate Course Directors:

Mr. S. Lakshmi Narayanan, Principal, KV, Virudhunagar, Chennai cum Associate Course Director.

Mr. Hari Lal, Principal, KV Kasargod, Kerala cum Associate Course Director.

Resource Persons:

Mr. T. Narayana Dhas, TA (Biology), ZIET, Mumbai; cum Resource Person.

Mr. S. N. Ojha, PGT (Biology), KV Rewa, Jabalpur cum Resource Person.

The Magazine Committee Members and the numerous enthusiastic educators who dedicated their time, energy, and passion to contribute to this learning endeavor. Their active participation and valuable insights have enriched the learning experience for all involved.

Each member of the KVS ZIET Mumbai team has played a pivotal role in ensuring the smooth execution and success of this initiative. Their unwavering support, meticulous planning, and dedicated efforts have been invaluable.

Their collective commitment and unwavering dedication have been the cornerstone of this ambitious project, fostering a platform that promotes excellence in pedagogy and empowers educators in the domains of Biology and Biotechnology.

We extend our heartfelt appreciation to all these individuals and teams for their exceptional contributions and commitment to the enhancement of education and the professional growth of educators. Their efforts have significantly shaped the success of this endeavor, establishing new benchmarks in the realm of teacher development.

WORD FROM THE DEPUTY COMMISSIONER CUM COURSE DIRECTOR

Kendriya Vidyalaya Sangathan, being a pace setting educational organization, strives to have the best to impart education to over twelve lakhs students studying in 1200 Kendriya Vidyalayas spread across the length and breadth of our country. Besides that, the KVS have three schools abroad – one in Tehran (Iran), the second in Moscow (Russia) and the third in Kathmandu (Nepal).

In order to ensure excellence in school education, it has a fourfold mission which is as follows:

1. To cater the educational needs of children of transferable Central Government including Defence and Para-military personnel by providing a common programme of education;
2. To pursue excellence and set the pace in the field of school education;
3. To initiate and promote experimentation and innovations in education in collaboration with other bodies like Central Board of Secondary Education (CBSE) and National Council of Educational Research and Training (NCERT) etc.
4. To develop the spirit of national integration and create a sense of "Indianness" among children

Excellence in education depends upon the quality of Teachers we engage to entrust the students with. This is possible only when the teachers are fine tuned to fulfill the expectations of the organization by considering themselves as a part and parcel of the setup. This calls for familiarizing the teachers, particularly the newly joined teachers of Sangathan family, with vision, mission, objectives and programme of action of the organization. Added to that is to help them recognize the appropriate expectations of the KVS like roles and responsibilities of teachers towards curricular and co-curricular tasks, the legal frame work which governs their work and conduct, following the state's legitimate norms as enunciated in acts such as POCSO, RTE, RTI and so on. It is also important for them to have a clear understanding of the code of conduct, the provisions such as 81 (B), 81 (D), and other codified norms in the Education Code for Kendriya Vidyalayas, the Account s code and CCS (CCA) Rules, 1965 and CCS (CCA) rules 1964 which have been adopted *mutandis mutadis* by the KVS.

These apart, as teachers they need to have a thorough grounding in the pedagogical policies and practices to be followed fully utilizing the abundant of human and material resources available in every Kendriya Vidyalaya.

The student-centric developmental plan of action in Kendriya Vidyalayas have many unique components for the integrated personality development as well as intellectual development of the students such as back to basics, roots to roots, academic loss compensation programme, effective communicative English skills development

programme, JIGYASA, Olympiads, science congresses, national integration camps and so on.

The multifarious KVS programme of action are so diverse and varied that if properly understood and implemented, it would make the students of Kendriya Vidyalayas the best with their knowledge and skills comparable to that of the students of any of the best educational institution in the world.

The 10-days 2ND Spell In service course conducted for the PGT Biology, PGT Biotechnology and TGT Science at ZIET MUMBAI from 25-12-2023 to 03-01-2024 consciously made efforts to give the bird's eye view of the gamut of issues the teachers need to be abreast of. The enthusiastic participation of the teachers has given a clear message that they are fully ready to encourage, educate and enlighten the students entrusted to their care.

I take this opportunity to convey my gratitude and best wishes to the In- service course training team and the participants for making the course a grand success.

**Mrs. Shahida Parveen
Deputy Commissioner
KVS, ZIET MUMBAI**

WORD FROM THE ASSOCIATE COURSE DIRECTOR

It is my immense pleasure and privilege for me to remain the part of the second spell of In-service course for PGT Biology and Bio-technology organized by ZIET Mumbai, as an Associate Course Director from 25-12-2023 to 03-01-2024

In-service Course can help teachers to update the current subject content to improvise their teaching methodologies and to improve the level of performance of their students. The study was conducted by the facilitators and sought to understand the remarkable improvement in teachers' perceptions and experiences in teaching Biology.

Twenty seven Post Graduate teachers from both subjects were involved in the Training program and this course certainly as a part of their continuous professional development and help their students to improve their level also.

This in-service course played the vital role to maintain the standard of in-service teacher training and keep them abreast with the latest modalities that ought to be imparted to the students. The enlightened teachers will be the torch-bearers to spread the light of knowledge and discipline amongst the young minds.

I sincerely thanks to Course Director and other dignitaries for their guidance and support, while performing my duties for the conduct of this in-service course.

Mr. S. Lakshmi Narayanan,
Principal K V Virudhunagar
Associate Course Director

From the e-Magazine Committee

We're honored to welcome you to the culmination of dedication, innovation, and the collective passion of luminaries in the field of education. This e-Magazine, a testament to the brilliance and commitment of Post Graduate Teachers in Biology and Biotechnology, is a celebration of knowledge, growth, and transformation.

With each click and every swipe, you'll embark on a journey. A journey not merely through pages but through the corridors of insight, where the art of teaching and the science of biology-biotechnology converge.

We've not just assembled content; we've stitched stories, experiences, and wisdom into this digital fabric. It's a tapestry woven by the committed educators, resource persons, and leaders of tomorrow, all knit together in the spirit of collaborative learning.

From the vivid narratives of our Associate Course Directors and Resource Persons to the innovative reflections of our distinguished participants, this e-Magazine is a symphony, resonating the harmonious efforts that took shape during this In-Service Course.

To Ms. Nidhi Pandey, Commissioner at Kendriya Vidyalaya Sangathan, Ms. Chandana Mandal, Joint Commissioner (Trg.), and Mrs. Shahida Parveen, Deputy Commissioner & Course Director, we express our sincerest gratitude for their unwavering support and guidance.

And to every member of the Kendriya Vidyalaya Sangathan, ZIET Mumbai staff and the vibrant e-Magazine Committee, thank you for your tireless commitment in curating this digital masterpiece.

As we navigate through these digital pages, let's remember, it's not just about information; it's about transformation. It's about inspiring minds, nurturing growth, and shaping the future of education, one pixel at a time."

e-Magazine Committee

OBJECTIVES OF THE INSERVICE COURSE

Objective 1: Enhancement of Pedagogical Skills

Equip PGTs with advanced teaching methodologies specifically tailored for Biology and Biotechnology subjects.

Foster innovative and interactive teaching approaches for complex biological concepts.

Provide strategies to create engaging classroom environments conducive to effective learning.

Objective 2: Upgradation of Subject Knowledge

Deepen understanding and expertise in contemporary biological concepts and biotechnological advancements.

Explore interdisciplinary connections between biology and related fields to facilitate comprehensive teaching.

Familiarize teachers with the latest research, trends, and discoveries in biology and biotechnology.

Objective 3: Integration of Technology in Teaching

Introduce teachers to cutting-edge educational technologies relevant to biology and biotechnology education.

Demonstrate effective utilization of digital tools, software, and e-learning platforms to enhance teaching and learning experiences.

Enable PGTs to integrate technology seamlessly into curriculum delivery.

Objective 4: Curriculum Development and Assessment

Train PGTs in designing effective biology and biotechnology curricula aligned with national standards.

Provide tools and techniques for formative and summative assessments that evaluate understanding and application of biological concepts.

Enable teachers to develop diverse assessment methods suitable for different learning styles.

Objective 5: Collaborative Learning and Networking

Facilitate collaboration among PGTs from diverse backgrounds and regions across India.

Encourage the exchange of ideas, experiences, and best practices in biology and biotechnology education.

Establish a network for continuous support and professional growth post the course.

Objective 6: Encouraging Research and Innovation

Inspire teachers to engage in research-based practices and promote a culture of innovation in biology and biotechnology education.

Encourage the development of educational resources, teaching materials, and innovative teaching approaches.

Enable PGTs to contribute actively to the advancement of teaching methodologies and curriculum design in the field.

Objective 7: Empowering Leadership and Mentorship

Provide leadership training to foster mentorship roles within schools and educational institutions.

Empower PGTs to lead and guide their peers in implementing effective biology and biotechnology education strategies.

Cultivate a cadre of informed and empowered leaders in biology and biotechnology education across India.

LIST OF THE TRAINING TEAM

1. Mrs. Shahida Parveen, Hon'ble DC, KVS ZIET MUMBAI cum Course Director.
2. Mr. S. Lakshmi Narayanan, Principal, KV Virudhunagar, Chennai cum Associate Course Director.
3. Mr. Harilal S. Principal, KV Kanjikode, Kerala cum Associate Course Director.
4. Mr. T. Narayana Dhas, TA (Biology), ZIET, Mumbai; cum Resource Person.
5. Mr. S. N. Ojha, PGT (Biology), KV Rewa; Jabalpur cum Resource Person.

TIME TABLE FOR THE INSERVICE COURSE

SECOND SPELL OF 10 DAYS INSERVICE COURSE FOR PGT BIOLOGY & BIOTECHNOLOGY FROM 25-12-2023 TO 03-01-2024

DATE&DAY	09.00 am to 09.30 am	9.30am-11.15 am	11.15 am to 11.30 am	11:30 am - 01.00pm	1.00 pm to 2.00 pm	2.00 pm-4.00 pm	4.00 pm-4.15 pm	4.15pm-05.30 pm
25/12/2023 MONDAY	REGISTRATION	INAUGURATION & COURSE OBJECTIVES. Mrs.SHAHIDA PARVEEN DIRECTOR/DEPUTY COMMISSIONER ZIET Mumbai	TEA BREAK	LEARNING FRAME WORK OF BIOLOGY BY SHRI. S. LAKSHMI NARAYANAN ACD	LUNCH	PRE TEST	TEA BREAK	GROUP DIVISION& GROUP WORK ALLOTMENT
26/12/2023 TUESDAY	PRAYER & REPORT OF PREVIOUS DAY	ONLINE RESOURCES AND COPY RIGHT ISSUES BY MR. T NARAYANA DHAS RP-1	TEA BREAK	BIOTECHNOLOGY- EFFECTIVE TOOLS AND TECHNIQUES BY MR. S,N OJHA RP-2	LUNCH	DEMO LESSON (Sl.no:1-4 Participants as per list))	TEA BREAK	GROUP WORK
27/12/2023 WEDNESDAY	PRAYER & REPORT OF PREVIOUS DAY	CRITERIA TO PREPARE DIFFERENT TYPES OF QNS &EVALUATION IN BIOLOGY BY Mr. S. LAKSHMI NARAYANAN ACD	TEA BREAK	DIAGNOSTIC TEST AND APPLICATION OF BIOTECHNOLOGY BY MR. S,N OJHA RP-2	LUNCH	DEMO LESSON (Sl.no: 5-8 Participants as per list))	TEA BREAK	GROUP WORK
28/12/2023 THURSDAY	PRAYER & REPORT OF PREVIOUS DAY	ELECTRON TRANSPORT CHAIN (ETS) BY Mr. S.N OJHA RP-2	TEA BREAK	UTILISATION OF VIRTUAL RESOURCES FOR BIOLOGY TEACHING P-1 BY MR. T NARAYANA DHAS RP-1	LUNCH	C DEMO LESSON (Sl.no: 9-12 Participants as per list)OURSE WORK (INDIVIDUAL)	TEA BREAK	GROUP WORK
29/12/2023 FRIDAY	PRAYER & REPORT OF PREVIOUS DAY	MID TEST	TEA BREAK	ASSESSMENT-OBJECTIVE TYPE TEST ITEM PREPARATION AS PER COMPETENCIES. BY Mr. S. LAKSHMI NARAYANAN ACD	LUNCH	DEMO LESSON (Sl.no: 13-16 Participants as per list))	TEA BREAK	GROUP WORK

30/12/2023 SATURDAY	EDUCATION TOUR							
31/12/2023 SUNDAY	PRAYER & REPORT OF PREVIOUS DAY	UTILISATION OF VIRTUAL RESOURCES FOR BIOLOGY TEACHING P-2 BY MR. T NARAYANA DHAS. RP-1	TEA BREAK	MECHANISM OF HORMONAL ACTIONS BY Mr. S.N OJHA RP-2	LUNCH	DEMO LESSON (Sl.no: 17-20 Participants as per list))	TEA BREAK	GROUP WORK
01/01/2024 MONDAY	PRAYER & REPORT OF PREVIOUS DAY	ART INTEGRATED LEARNING AS PER NEP-2020 BY MR. T NARAYANA DHAS. RP-1	TEA BREAK	DEMO LESSON (Sl.no: 21-24 Participants as per list)	LUNCH	DEMO LESSON (Sl.no: 25-27 Participants as per list)	TEA BREAK	GROUP WORK
02/01/2024 TUESDAY	PRAYER & REPORT OF PREVIOUS DAY	POST TEST	TEA BREAK	PEDIGREE ANALYSIS BY Mr. S.N OJHA RP-2	LUNCH	PROCEDURE RELATED TO STOCK VERIFICATION & CONDEMNATION BY Mr. S. LAKSHMI NARAYANAN ACD	TEA BREAK	GROUP-1,2&3 PRESENTATION
03/01/2024 WEDNESDAY	PRAYER & REPORT OF PREVIOUS DAY	GENETICS NUMERICALS BY Mr. S.N OJHA RP-2	TEA BREAK	ANALYSIS OF INDIVIDUAL WORK-FEEDBACK ON ACTION RESEARCH.	LUNCH	GROUP-4,5&6 PRESENTATION	TEA BREAK	VALEDICTORY

LIST OF THE PARTICIPANTS

SL NO.	NAME	DESIGNATION	SCHOOL	REGION
1.	PUKH RAJ	PGT (BIO)	KV SAC VASTRAPUR	AHMEDABAD
2.	SANJAY TANWAR	PGT (BIO)	PM SHRI KENDRIYA VIDYALAYA BHILWARA	JAIPUR
3.	ISHWER LAL JAL	PGT (BIO)	PM SHRI KENDRIYA VIDYALAYA HANUMANGARH	JAIPUR
4.	LALIT MOHAN CHATURVEDI	PGT (BIO)	PM SHRI KENDRIYA VIDYALAYA NO. 2 KOTA	JAIPUR
5.	SHALINI PALIWAL	PGT (BIO)	PM SHRI KENDRIYA VIDYALAYA SIKAR	JAIPUR
6.	MRS JYOTI SHARMA	PGT (BIO)	K V MATHURA CANTT,	AGRA
7.	DR. V S NISHAKARA CHARY	PGT (BIO)	PM SHRI K V NPA SHIVRAMPALLY, HYDERABAD	HYDERABAD
8.	N J SUDHIR KUMAR	PGT (BIO)	PM SHRI K V MAHABUBNAGAR	HYDERABAD
9.	MRS. S.VIJAYA	PGT (BIO)	K V, ISLAND GROUNDS,PALLAVAN SALAI, CHENNAI	CHENNAI
10.	SHRI C CHELLAPANDIAN	PGT (BIO)	PM SHRI KENDRIYA VIDYALAYA ANNANAGAR	CHENNAI
11.	CHETAN DEV	PGT (BIO)	PM SHRI KENDRIYA VIDYALAYA ALMORA	DEHRADUN
12.	SWATI KAMLESH BISHT	PGT (BIO)	DR RAJENDRA PRASAD, K V PRESIDENT'S ESTATE, NEW DELHI	DELHI
13.	SHRUTI AGRAWAL	PGT (BIO)	PM SHRI KENDRIYA VIDYALAYA BNP DEWAS	BHOPAL
14.	MANJU SINGH	PGT (BIO)	KENDRIYA VIDYALAY OLD CANTT PRAYAGRAJ	VARANASI
15.	RAMESH KUMAR SAHOO	PGT (BIO)	PM SHRI KENDRIYA VIDYALAYA RAYAGADA	BHUBANESWAR
16.	GAURANGA CHANDRA PANDA	PGT (BIO)	KV NO.3 CUTTACK	BHUBANESWAR
17.	MR. RAJA KISHORE CHAMPATI	PGT (BIO)	PM SHRI KENDRIYA VIDYALAYA BERHAMPUR	BHUBANESWAR
18.	PRADIP KUMAR MOHAPATRA	PGT (BIO)	PM SHRI KENDRIYA VIDYALAYA BHUBANESWAR 1, 2ND SHIFT	BHUBANESWAR
19.	GAUTAM BISWAS	PGT (BIO)	PM SHRI K V ANDAL	KOLKATA
20.	MITHUN CHAKRABORTY	PGT (BIO)	PM SHRI KENDRIYA VIDYALAYA CHITTARANJAN	KOLKATA
21.	SUMAN VERMA	PGT (BIO)	PM SHRI K V NO 1 AFS SAMBRA	BANGLORE
22.	APIBENI B BULSARA	PGT (BIO)	PM SHRI KENDRIYA VIDYALAYA NO 2 AFS KALAIKUNDA	KOLKATA
23.	RAJU DEY	PGT (BIO)	KV IIT GUWAHATI	GUWAHATI
24.	DEBAKANTA MAHARANA	PGT (BIO)	PM SHRI KENDRIYA VIDYALAYA NO-1 CUTTACK	BHUBANESWAR
25.	PUJA KULTHIA	PGT (BIOTECH)	KV NO.1 PATIALA CANTT.	CHANDIGARH
26.	ARPITA BASU	PGT (BIOTECH)	K.V NO.1 BHUBANESWAR 1ST SHIFT	BHUBANESWAR
27.	ABHINAV GOYAL	PGT (BIOTECH)	PM SHRI KENDRIYA VIDYALAYA KHANAPARA, GUWAHATI	GUWAHATI

DAILY REPORTS

REPORT OF DAY-1

Date: 25.12.2023

Good morning,

Hon'ble Course Director, Respected Associate Course Directors, Esteemed Resource Persons and learned colleagues!

The report for the 1st day of the 2nd Spell of In-Service Course for PGT Biology, Bio-technology and TGT Science is hereby presented by the members of Group-6(Mendel Group).

The first day of in service course spell-2nd for PGT- Biology, Biotechnology & TGT- Science started with the Registration work. The inaugural ceremony, including prayer, lighting of the lamp and brief introduction of all the participants, in the presence of the Hon'ble Course Director Mrs. Shahida Parveen, Associate Course Director for PGT- Biology/Biotechnology- Shri S. Lakshmi Narayanan, Associate Course Director For TGT Science Sh. Harilal S. and all the Resource Persons for the ISC Spell-II. It was followed by Tea Break.

Post Tea Break , Resource person for PGT Biology /Biotechnology Mr T. Narayana Dhas welcomed all the participants. Sir thoroughly discussed every thing about the core objectives of the ISC-2nd spell and what is expected from the participants in this spell of ISC. Thereafter Associate Course Director for PGT- Biology/Biotechnology- Shri S. Lakshmi Narayanan gave feedback of the 1st spell ISC .While describing the 1st spell as content enrichment oriented, he also pointed out some of the drawbacks of the submitted assignments. He ensured a great level of enthusiasm from the participants throughout the entire duration of the ISC so as to make this in-service course fruitful and productive, in true sense, for one and all. Thereafter he also delivered a fruitful and interactive session on LEARNING FRAME WORK OF BIOLOGY. It was followed by Lunch break

In the Post lunch session, a pre- test of 02 hour duration was conducted to assess the entry level-behaviour of the participants which was followed by tea-break .

In the post Tea break , activities like Group Formation, Nomenclature of the groups, Selection of Group Leader, Assignment of day to day group activities were discussed. Participants were assigned to prepare 30 MCQs ,concept map & gist of the lesson allotted to them as individual activity and one sample paper for class XI Session ending examination & two sample papers for class XII Board examination,30 Assertion-Reason type questions, Five case based and competency based questions on the allotted unit as group activity. At last, Resource person Mr T. Narayana Dhas informed the participants about the copyright issues which may arise while preparing the assignments and also guided the participants how to prepare case based and competency based Questions. This was followed by closure of the Day 1.

REPORT OF DAY-2

Date: 26.12.2023

Good morning,

Hon'ble Course Director, Respected Associate Course Directors, Esteemed Resource Persons and learned colleagues!

The report for the 2nd day of the 2nd Spell of In-Service Course for PGT Biology, Bio-technology and TGT Science is hereby presented by the members of Group-5.

The morning assembly started with the prayer by the members of group-6 (G.J Mendel Group). This is followed by Thought by Mrs.S.Paliwal, News by Ms.Swati Kamlesh Bisht, special item by Mr.P K Mahapatra and report by Mr.D Maharana.

After the assembly programme a feedback on first day report was given by Associate course director, Shri S. Lakshmi Narayanan.

In session I, Mr. T. Narayan Dhas, resource person for PGT Biology and Biotechnology delivered lecture of "Online courses and Copyright" The session was highly informative. All the participants gathered enough knowledge on copyright. It was followed by Tea Break

Post Tea Break, a very good and informative session was taken by the Resource Person, Mr. S N Ojha on Biotechnology: Effective Tools & Techniques. It was followed by Lunch Break.

Post Lunch, Four ISC participants presented their demo- lessons .Mrs .Puja Kulthia on topic "Linkage and Crossing over", Mrs. Arpita Basu on topic "Transgenic plants with beneficial traits", Mr. Abhinav Goyal on topic "Genome similarity and SNP" and final demo-lesson was presented by Mr. Pukhraj on topic "Salient feature of Fungi".

During all the demo-lessons all the participants involved themselves and interacted effectively.

After each demo-lesson Associate course director Shri S. Lakshmi Narayanan, gave feedback to the participants. It was followed by Tea Break.

Post Tea Break, Participants started the assigned group work i.e preparation of sample question papers, CBQs, & Assertion and reason type questions.

The entire day was well utilized by all the participants for gaining knowledge from the training course.

REPORT OF DAY-3

Date: 27.12.2023

Hon'ble Course Director, Respected Associate Course Directors, Esteemed Resource Persons and learned colleagues!

The report for the 3rd day of the 2nd Spell of In-Service Course for PGT Biology, Bio-technology and TGT Science is hereby presented by the members of Group-4.

The day began with the group assembly presented by group members of T H Morgan group, in which Mr Mithun Chakraborty introduced an easy way to recall the sequence of genes in lac operon. Opening remarks and introduction of the programme for the day was given by Mr. T. Narayan Dhas, resource person for PGT Biology and Biotechnology Narayan.

The 1st session was addressed by most respectful Associate course director Shri S. Lakshmi Narayanan, on the topic, "Criteria to Prepare Different types of questions & Evaluation in Biology", where he enlightened the participants regarding the setting up of different patterns of questions for exams. He began his session by asking the participants to prepare MCQ, true/false, fill up the blank and one three/ five marks questions. He further emphasized on the necessity of innovative and creative and critical thinking approaches while preparing the question. The session was very useful and all the participants were actively engaged in sharing the similar experiences. It was followed by Tea Break.

Post Tea Break, a very good and informative session was taken by the Resource Person, Mr. S N Ojha on Diagnostic Tests and Applications of Biotechnology. It was followed by Lunch Break.

Post Lunch Break, four of the teacher participants explained their demo lesson plans which included Mr Lalit Mohan Chaturvedi on the topic Anatomy of frog, Mr Ishwar Lal Jal on the topic Morphology of plants, Mrs Shalini Paliwal on the topic Endomembrane system and Mr Sanjay Tanwar on the topic Gymnosperms All the demo lessons were quite effective. It was followed by Tea Break.

Post Tea session began with the group work in which the participants got themselves engaged in the assigned topics. All the teams were found in action and supplemented each other's work. This was the last and enriching session of the day, which marked the conclusion of another fruitful day.

REPORT OF DAY-4

Date: 28.12.2023

Hon'ble Course Director, Respected Associate Course Directors, Esteemed Resource Persons and learned colleagues!

The report for the 4th day of the 2nd Spell of In-Service Course for PGT Biology, Bio-technology and TGT Science is hereby presented by the members of Group-3.

Assembly was conducted by M.S.Swaminathan Group. After assembly ACD Sh. S. Lakshminarayanan, briefed the participants that the Group Works to be comprised of three volumes with the same types of cover page.

Volume-I to contain Minimum Level of Learning Materials for the late bloomers, volume-II to contain materials for bright learners, and volume-III is meant for uploading photographs, daily routine, daily reports etc.

Mr. S.N.Ojha Resource person took a session on "Electron Transport Chain". His session was based on role play method which was very effective and all the participant's participated very enthusiastically.

In the post Tea session a very interactive and informative session was taken by Mr. T. Narayan Dhas, resource person for PGT Biology and Biotechnology on the topic: Utilization of Virtual Resources for Biology Teaching, (Part -I). It was followed by Lunch Break.

Post Lunch Break, Demo lessons were taken by the following participants:

Mrs. Jyoti Sharma on Structure and function of Carbohydrates, lipids, proteins and nucleic acids, Dr. V.S.N.Chary on Enzymes, Mr. N.J.Sudhir Kumaron Meiosis and Dr. S.Vijaya on Photophosphorylation, Chemiosmotic hypothesis. It was followed by Tea break.

Post Tea Session started with the group work where all the participants engaged with their assigned works.

REPORT OF DAY-5

Date: 29.12.2023

Hon'ble Course Director, Respected Associate Course Directors, Esteemed Resource Persons and learned colleagues!

The report for the 5th day of the 2nd Spell of In-Service Course for PGT Biology, Bio-technology and TGT Science is hereby presented by the members of Group-2.

The morning assembly started with the prayer led by Har Gobind Khorana group. It was commanded by Mr Sanjay Tanwar, mind invoking thought by Mrs. Manju Singh, news by Mr G.C. Panda, daily report by Dr VSN Chary and Mrs. Manu and special item on a newly discovered species by Mrs. S. Vijaya.

In session I, Mid-Test was conducted. It was followed by Tea Break.

Post Tea Break, a very good and informative session was taken by the ACD, Sh. S. Lakshminarayanan on Assessment-Objective Test Items Preparation as per Competencoes. It was followed by Lunch Break.

Post Lunch Session began with , demo lessons by Four ISC participants : Mrs Shruti Agrawal on topic "Structure of human heart, Cardiac Cycle, cardiac output and ECG".

Dr. Swati Kamlesh Bisht on topic "Mechanism of breathing and its regulation in humans-exchange and transport of gases."

Mr. Chellapandian on topic "Glycolysis, fermentation and TCA". And final demo-lesson was presented by Mr. Chetan Dev on topic" Plant growth regulators-Auxin and Gibberellin'.

During all the demo-lessons all the participants took active role in participation and discussions. It was followed by Tea Break.

In the post tea session , Participants assembled into their respective groups to complete the assigned group works.

The entire day was well utilized by every individual for sharing and gaining knowledge from the training course.

REPORT OF DAY-6

Date: 30.12.2023

Hon'ble Course Director, Respected Associate Course Directors, Esteemed Resource Persons and learned colleagues!

The report for the 6th day of the 2nd Spell of In-Service Course for PGT Biology, Bio-technology and TGT Science is hereby presented by the members of Group-1.

We started our journey at around 8 AM and at first reached at the Gateway of India, one of the prime tourists spots in Mumbai which was used as a symbolic ceremonial entrance to India for important government personnel during the British era and it was here from where the last British troops left India in 1948. We also enjoyed the scenic beauty of the Taj Palace and Arabian Sea out there.

Then we headed towards the Chatrapati Shivaji Maharaj Vastu Sangrahalaya, a museum which documents the history of India and houses around 50,000 exhibits of ancient Indian history as well as objects from foreign lands.

After that we went to Malabar Hills where we had our lunch and then we witnessed the beauty of the Mumbai coastline from the viewpoint which is at a height of around 50 metres ASL.

Thereafter the team reached near Mahalaxmi temple, from where one group went to Mahalaxmi temple and the other to Hazi Ali Dargah.

After that the team went to Siddhi Vinayak Temple where people offered prayers to Lord Ganesha.

Then we travelled through the truly mesmerizing beauty of the sea link to reach the Bandstand- a 1.2 km long walkaway along the sea, from where we now started our return journey and reported to Z.I.E.T campus at around 7:45 AM.

It was a beautiful day that we all enjoyed thoroughly. On behalf of every participant we Stanley Group would like to extend our heartfelt thanks to Hon'ble Course Director Madam and the entire Z.I.E.T team for arranging the tour that we all will cherish in our memories.

REPORT OF DAY-7

Date: 31.12.2023

Hon'ble Course Director, Respected Associate Course Directors, Esteemed Resource Persons and learned colleagues!

The report for the 7th day of the 2nd Spell of In-Service Course for PGT Biology, Bio-technology and TGT Science is hereby presented by the members of Group-6.

The morning assembly was conducted by the members of the group 1 i.e. Stanley group. After the prayer, thought and news were presented by Mrs. Pooja Kulthia. Mrs Arpita Basu read the previous day report. A mind boosting special item on Sir J C Bose was presented by Mr. Abhinav Goyal.

The 1st Session started with the topic "Utilization of Virtual Resources for Biology Teaching, (Part -II)" by Mr. T. Narayan Dhas, resource person for PGT Biology and Biotechnology. It was an interactive session which ended with a quiz. It was followed by Tea Break.

Post Tea Break, a very good and informative session was taken by the Resource Person, Mr. S N Ojha on Mechanism of Hormonal Action. It was followed by Lunch Break

After the Lunch break, the session started with demo lessons by Mr. Ramesh Kumar Sahu on the topic "endocrine glands". Mr. Gourang Chandra Panda on the topic "Post fertilisation changes", Mr Rajkishore Champati on Gametogenesis and Mr. Mithun Chakraborty on "Hardy Weinberg Principle". It was followed by Tea Break.

In the post tea session, Participants assembled into their respective groups to complete the assigned group works

REPORT OF DAY-8

Date: 01-01-2024

Hon'ble Course Director, Respected Associate Course Directors, Esteemed Resource Persons and learned colleagues!

The report for the 8th day of the 2nd Spell of In-Service Course for PGT Biology, Bio-technology and TGT Science is hereby presented by the members of Group-2.

The morning assembly started with the prayer led by Gregor Johann Mendel group. It was commanded by Mr Debakanta Maharana, mind invoking thought by Dr. Swati Kamlesh Bisht, news by Mr. D Maharana, report of previous day by Mr. P. K. Mohapatra and Mr. Vijay Kumar and special item on dancing frog of India by Mrs. Shalini Paliwal.

Associate Course Directors Shri S. Lakshmi Narayanan and Shri. Harilal S.; Resource persons Mr. T. Narayan Dhas and Mr. S N Ojha wished a happy and prosperous New Year to everyone.

In session I, Mr. T. Narayan Dhas, resource person for PGT Biology and Biotechnology took an interactive session on "Art Integrated Teaching and Learning of Biology". It was followed by Tea Break.

Post Tea Break, four ISC participants presented their demo- lessons: Mr. P. K. Mohapatra on topic "Mendelian Disorders ", Mrs. Manju Singh on topic "Locomotion and movement.", Mr. Gautum Biswas on topic "DNA Fingerprinting" and Ms. Suman Verma on topic "Cancer". It was followed by Lunch Break

After lunch, three more demo lessons were presented by Mrs. Apibeni B. Bulsara on topic "Applications of biotechnology in health", Mr. Raju Dey on Population interaction: Predation and Competition" and Mr. Debakanta Maharana on the topic Recombinant DNA Technology".

During all the demo-lessons all the participants took active role in participation and discussions. It was followed by Tea Break.

Post Tea break, Participants assembled into their respective groups to complete the competency-based questions and sample question papers.

The entire day was well utilized by every individual for sharing and gaining knowledge from the training course.

REPORT OF DAY-9

Date: 02-01-2024

Hon'ble Course Director, Respected Associate Course Directors, Esteemed Resource Persons and learned colleagues!

The report for the 9th day of the 2nd Spell of In-Service Course for PGT Biology, Bio-technology and TGT Science is hereby presented by the members of Group-4.

The morning assembly started with a prayer led by the Francis Crick group. It was commanded by Ms. Shruti Agarwal, mind invoking thought by Mrs. Apibeni B. Bulsara, news by Mr. Pukhraj Vaishnav, report of previous day by Mrs. Jyoti Sharma. and Mrs. Rekha Semwal and special item was presented on use of Google Earth Pro app in the teaching of biology by Mr. Gautam Biswas.

session I was completed with the end of Post test exam.

session II, post tea session starts with presentation of group work by Ms. Pooja Kulthiya the group leader of group 1 and ends up with the group work presentation by Mr. Pukhraj Vaishnav group leader of group 2.

session III, the post lunch session starts with the group work presentation by the group leader of group 3 Mrs. S. Vijaya and ends up with the group work presentation by the group leader of group 4 Mr. Raja Kishore Champati.

In session IV, post tea session Participants assembled again for their respective groups work modifications as per the suggestions put forward by the participants and resource person.

The entire day was well utilized by every individual for sharing and gaining knowledge from the training course.

REPORT OF DAY-10

Date: 03-01-2024

Hon'ble Course Director, Respected Associate Course Directors, Esteemed Resource Persons and learned colleagues!

The report for the 5th day of the 2nd Spell of In-Service Course for PGT Biology, Bio-technology and TGT Science is hereby presented by the members of Group-4.

The day begun with the morning assembly programme by MS Swaminathan group. Mr. R K Champati conducted the program, thought of the day was presented by Ms. Suman Verma, Mr. Lalit updated the participants by reading the news headlines and Mr. I L Jal conducted the special item on Genetics

A very good and informative session was taken by the Resource Person, Mr. S N Ojha on "Genetics Numerical". It was followed by Tea Break.

Post Tea session began with analysis of individual work-feedback on action research. It was followed by Lunch Break.

Post lunch session began with the group work presentation by groups 4 and 6. The whole output of the groups were discussed among the part and feedback received from everyone. It was followed by Tea Break.

The valedictory function of the 2nd spell of Inservice course was organized post tea. The Chief Guest of the valedictory function was Hon'ble Director, ZIET, Mumbai. During the sessions along with small cultural programme, two of the participants gave the expression about the training programme. Certificates for the successful completion of the training were distributed among the participants. The programme ended with the proposal of vote of thanks.

ASIMPOSIO
OF THE IOC 2023-24
(2ND SPELL)



ISC SPELL-II FOR PGT
BIO/BIOTECH

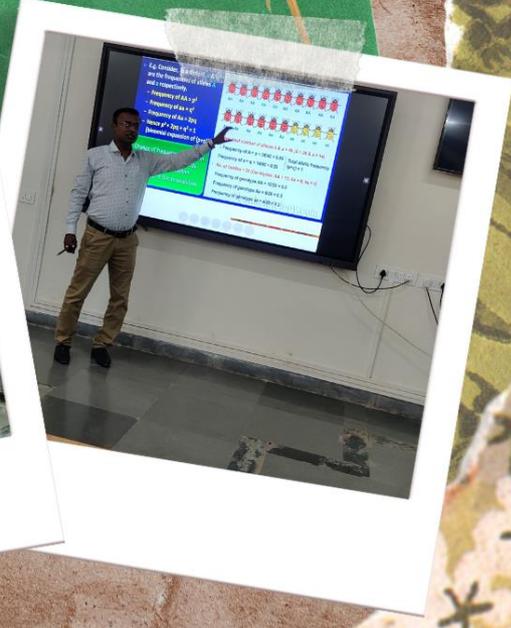


GROUP PHOTOGRAPH



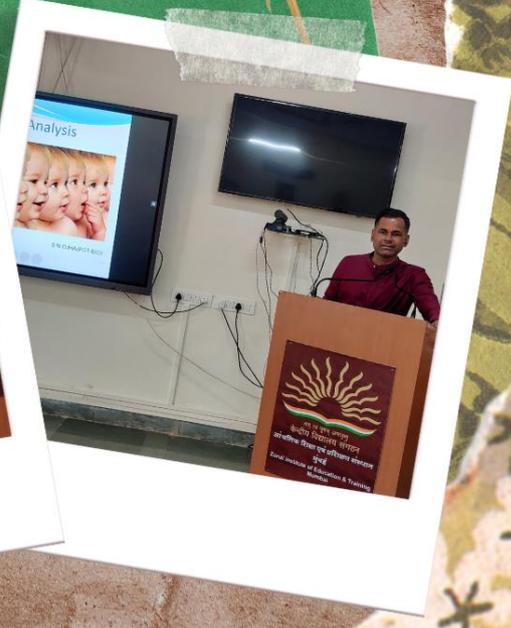
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SPELL-II







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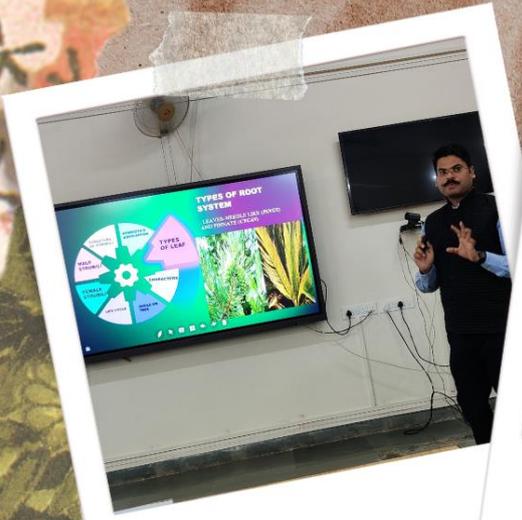


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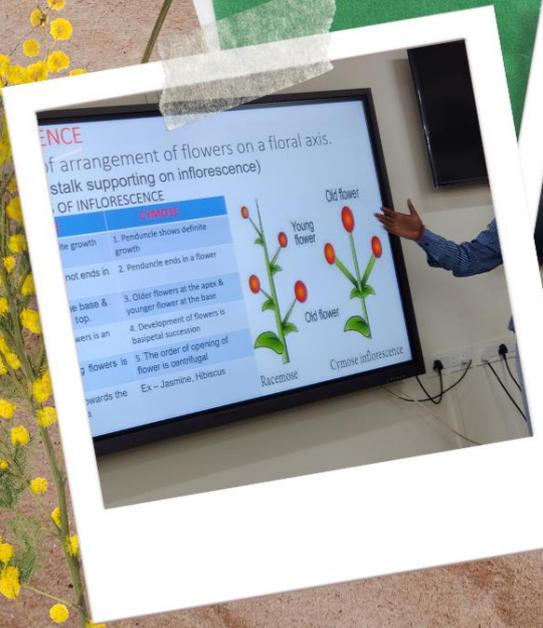




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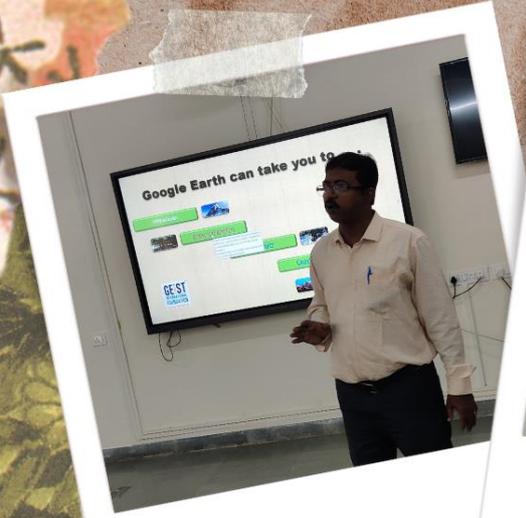
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Thank You !!!