"Education for Knowledge ,Science and Culture"

- Shikshanmaharshi Dr.Bapuji Salunkhe

Vivekanand College Kolhapur(Empowered Autonomous)

Department Of Biotechnology (Optional)

Notice

Date: 19 September 2024

Hereby it is informed to all Students of B.Sc I,II,III Biotechnology (Optional) your internal examination has been scheduled from 25 September to 28 September 2024 as per following timetable .

Sr.No.	Day	Date and time	class	Subject
1.	Wednesday	25/09/2024 12.40 to 01.30	B.Sc II	Enzyme Technology
			BSc III	PTC
2.	Thursday	26/09/2024	B.Sc III	Molecular Biology
		12.40 to 1.30		ATC
3.	Friday	27/09/2024 11.50 to 12.40	B.Sc III	Large Scale Manufacturing Process and Specific Fermentation I
			B.Sc I	Fundamentals of Biotechnology I
4.	Saturday	28/09/2024 11.50 to 12.40	B.Sc III	Large scale manufacturing process and Specific Fermentation II
			B.Sc I	Fundamentals of Biotechnology II

At Room No. 42

Be Present for Internal Examinations as it is a Part of your Academic Internal Evaluation.

All The Best!

VIVEKANAND COLLEGE ESTD. JUNE 1964 KOLHAPUR A.C. 003

Head Of Department

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

Shri Swami Vivekanand Shikshan Sanstha's
Vivekanand College, Kolhapur (An Empowered Autonomous Institute)
Department of Biotechnology Optional

Attendance internal examination B.Sc.I

S.N.	Roll No.	NAME OF STUDENT	24/02/25	28/02/25
1	7442	CHOUGALE SIDHIKA	Sidhika	Sidhika
2	7443	DANGAT PAVAN	Dangat	Dangat.
3	7444	DHOBALE SHRUTI	Dhobale.	Dhobale.
4	7445	ICHALKARANJIKAR MATRIYA		
5	7446	JADHAV NIPUN		
6	7447	JADHAV PALLAVI		
7	7448	KAMBLE GAYATRI	AC	AC
8	7449	KAMBLE MOLSHADA		
9	7450	KUMBHAR GOURI		
10	7451	KUMBHAR MADALSA		
11	7452	KUMBHAR USHA		
12	7453	KURANE ANSHU	A.S.K	A.S.K
13	7454	METHE SANIKA	Smethe	Smethe
14	7455	MULLA SADAF	Mulla.	Mulla.
15	7456	NANNAVARE VINIT		
16	7457	PRAWALKAR SHRINIDHI		
17	7458	PATIL ADITI	APatil	APatil
18	7459	PATIL CHAITRALI	Patil.	Patil.
19	7460	PATIL MADHURIMA	Mpatil.	Mpatil.
20	7461	PATIL PRAGATI	AC	AC
21	7462	PATIL SAMRUDHI	Spatil.	Spatil.
22	7463	PATIL SANIKA	S.R.Patil	S.R.Patil
23	7464	PATOLE VAIDEHI	Patole	Patole
24	7465	RASAL PRADNYA	Rasal.	Rasal.
25	7466	SALOKHE ADITI	Salokhe	Salokhe
26	7467	WANDRE RUTUJA	Rutuja	Rutuja
27	7468	YADAV ~~CHAVI~~ CHHAVI	C.Yadav.	C.Yadav
28	7534	SURYAWANSHI RAJLAXMI	Rajlaxmi	Rajlaxmi
29	7537	PATIL SRUSHTI	Srushti	Srushti
30	7551	Neha Kolpe		Kolpe.N.B

Shri Swami Vivekanand Shikshan Sanstha's
Vivekanand College, Kolhapur (An Empowered Autonomous Institute)
Department of Biotechnology Optional
Attendance B.Sc. II

Roll Call	Student name	25/02/25	28/2/25
7869	Beg Uzma Salim		
7870	Biradar vaishanavi Madhukar		
7871	Biradar Aryan raju		
7872	Chavan Swara Shjivaji		
7873	Desai Shaheen Shabbir		
7874	Disle Prerana Shivaji		
7875	Ghorapade Tanishka Manoj		
7876	Hirave Riya Sanjay		
7877	Jadh..v Prajwal Mohan		
7878	Jadhav Shreepad Baban		
7879	Kambale Aditya Vishwas		
7880	Kamble Amrapali Yashwant		
7881	Kamble Kran Suresh		
7882	Kolhapure Hafsa Rizwan		
7883	Magdum Harshwardhan Annaso		
7884	More Abhishekh Arun		
7885	Nalang Tanvi Kiran		
7886	Patil Bhinandan babaso		
7887	Patil Sakshi Prakash		
7888	Patil Sanika Yuvraj		
7889	Patil Snehal Ananda		
7890	Pendhari Ziya Mohammad Shafik		
7891	Rawook amruta Subhash		
7892	Sakate Ritesh Kiran		
7893	Sangrule Atharv Ramesh		
7894	Sawant Ankit Dipak		
7895	Shaikh Moin Riyaj		
7896	Shinde Bhakti Bhagavat		
7897	Shinde Kunal Vishal		

॥ ज्ञान, विज्ञान आणि सुसंस्कार यासाठी शिक्षण प्रसार ॥
- शिक्षणमहर्षी डॉ. बापूजी साळुंखे

विवेकानंद कॉलेज
(अधिकारप्रदत्त स्वायत्त)
कोल्हापूर

VIVEKANAND COLLEGE, KOLHAPUR.
(Empowered Autonomous)

SUPPLIMENT 09/10

Jr. Supervisor's Sign. :	
Students Sign. :	A.S.K
Seat No. :	7453
Seat No. in words :	
Suppliment No. :	1
	40934
Centre	V.C.K

प्र. क्र.
Q. No.

1. Co-dominance

- The co-dominance is a state in which each allel. by gene express. in the heterozygous individual.

- The co-dominance both dominant & recessive allel. lack their dominant & recessive relationship. & ge both gene express their expression is an independentaly.

- The example of co-dominance is roan coat in cattle with roan red bull crossed with white cow the F1 hybrid obtained with roan in colour.

- Th. When roan colour caused by mixing of the two types of hairs i.e. red & white hairs no hairs has intermediatly colour in red & white.

- When F1 hybrid roan colour hybrid inbreed the F1 hybrid consists in 1 red, 2 roan & 1 white.

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- The F1 hybrid roan in colour because the gene for red red colour & gene for white colour. they have about equal effect so there no dominance of one character the each other.

example of codominance

Parents Red bull × White bull

Genotype ⟶ RR × rr

Gamete ⟶ R r

F1 generation ⟶ Rr

All F1 hybrids are roan in colour.

F2 generation ⟶ Rr × Rr

	R	r
R	RR (red)	Rr (roan)
r	Rr (roan)	rr (white)

Result:-
Phenotype in F1 generation All F1 hybrid in road colour.
Genotype in F1 generation Rr
Phenotype in F2 generation 1 red, 2 roan, 1 white.

Genotype in F2 generation:- RR, Rr, rr

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प्र. क्र.
Q. No.

Functions of Lysosomes.

1) Extracellular digestion:-
- Lysosomal enzyme like egg & sperm released in outside in cell.
- Complex material convert into simple material.

2) Intracellular digestion:-
- The digestion of substances within cell is called as intracellular digestion.
- Intracellular digestion divided into two types:
  i) Autophagy and Heterophagy.

3) Autolysis:-
- They break down in cell organelles.
- Lysosomal membrane ~~ruptur~~ ruptured & that the enzyme release in cytoplasm.

4) Role in hormone secretion:-
- Lysosomal mediated thyroid hormone secretion.

5) Chromosomal breaks:-
- The enzyme caused by the chromosomal break & arranged in DNAse the two active type of ~~DNA~~ break down both stands to DNA.

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6) Fertilization :-
- Sperm released hydrolytic ~~from~~ enzyme that Acrosome vesicles.

7) Role during cell division :-
- Lysosomes of that particular divided cell move towards the periphery.

8) Role in Metamorphosis :-
- The larval insects & Amphibians the process of resorption in tadpole larval tail that the larval tissues.

9) Role in the Metabolism :-
- Lysosomes seem active to the well developed liver and pancreases in birds.

~~10) Role in the Dead cells~~
~~- Lysosomes helps in the helps in the Dead~~

10) Removal in Dead cells :-
- The lysosomes help in the removal in dead cells in the tissues.

05

Swara charan

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(अधिकारपदत्त स्वायत्त)
कोल्हापूर

VIVEKANAND COLLEGE, KOLHAPUR.
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SUPPLIMENT

Jr. Supervisor's Sign. :	Gotdar
Students Sign. :	
Seat No. :	7872
Seat No. in words :	Seven thousand eight hundred seventy two
Suppliment No. :	1
	40690
Centre	Vivekanand College Kolhapur

10

प्र. क्र. Q. No.

Q.] Uses of Probes / Application of probes:

1] For genetic engineering research:
For identification of clones possessing specific DNA sequences and for identification of transformants / recombinants possessing specific genetic characters.

2] for identification of plasmid and antibiotic resistant genes from clinical isolates. This helps to comment more accurately on antibiotic resistant pattern and epidemological help to decide antibiotic therapy.

3] For diagnosis of infectious diseases:-
If the pathogens are small in number or if it is difficult for isolation and cultivation of pathogens then molecular probes can be used for diagnosis of microbial diseases at an early stage. Profile axis inhibit pathogen before it reaches consequence stages.

4] For identification of food contaminants:
In Australia, the presence of pathogenic viruses in an imported agricultural produce and animals is rapidly detected by the use

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of recombinant probes. This saves constant eliminates the inconvinience caused in lengthy quarantine period.

5] for forensic investigations: Criminal identification, disputes of paternity, solving immigration cases, establishing family relations.

6] for crop breeders to identify good varieties of seeds & plants & to save the time & unnecessary storage which is required by long certification of good quality seeds.

7] For basic studies in molecular biology.

8] For distinguishing organisms at species and strength level.

9] For epidemological studies

10] Probes can be used for forensic studies.

Q2] PCR: (Polymerase chain reaction):

PCR is an in-vitro method of enzymatic action by specific DNA sequences developed by Kary Mullis in 1983. It is simple, inexpensive technique, tool which involved characterising, analysing & synthesising a particular part or piece of DNA and RNA from virtually from any living organisms. such as bacteria, viruses, humans, animals. It exploits natural function of polymerase in living things. To perform a molecular photocopy or to copy genetic material. It includes 3 steps:-

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1] Denaturation
2] Annealing
3] Extension

1] **Denaturation:** Here the 2 strands of DNA melt, open to form a single strand. All the enzymatic reaction stops. It is generally carried out at 92-94°C.

2] **Annealing:** Annealing (Bending) of primer from each original strand for synthesis of new strand is carried out at 45-55°C.

3] **Extension:** It is carried out at 72°C. PCR adds dNTPs complementary to template on 3' end of primer. as PCR copies both strands. As a result there is an exponential increase in number of copies of gene.

All these 3 steps are carried out in an automated thermocycler and repeated for 20-30 times. It heats and cools the reaction mixture in a tube in very short time. As a result, there is an exponential accumulation of DNA fragment end which is defined as 5' end of primer.

Amplification = 2^n

n = No. of primers

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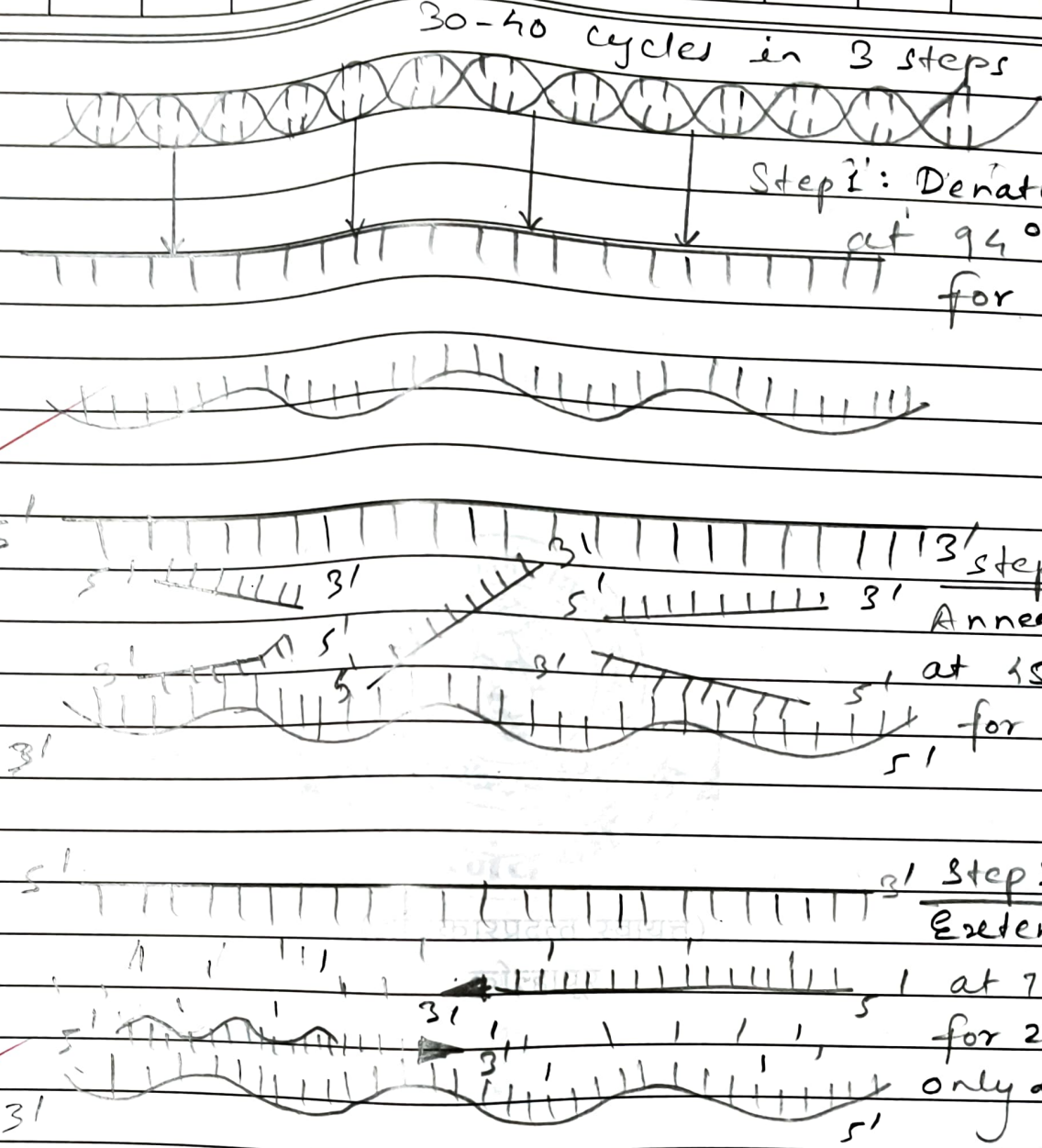

Fig: PCR (Polymerase Chain Reaction)

Swara Charan

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SUPPLIMENT

Jr. Supervisor's Sign. :	
Students Sign. :	Swara.
Seat No. :	7872
Seat No. in words :	Seven thousand eight hundred seventy two.
Suppliment No. :	2
	40656
Centre	Vivekanand College Kolhapur.

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3] DNA ligase:

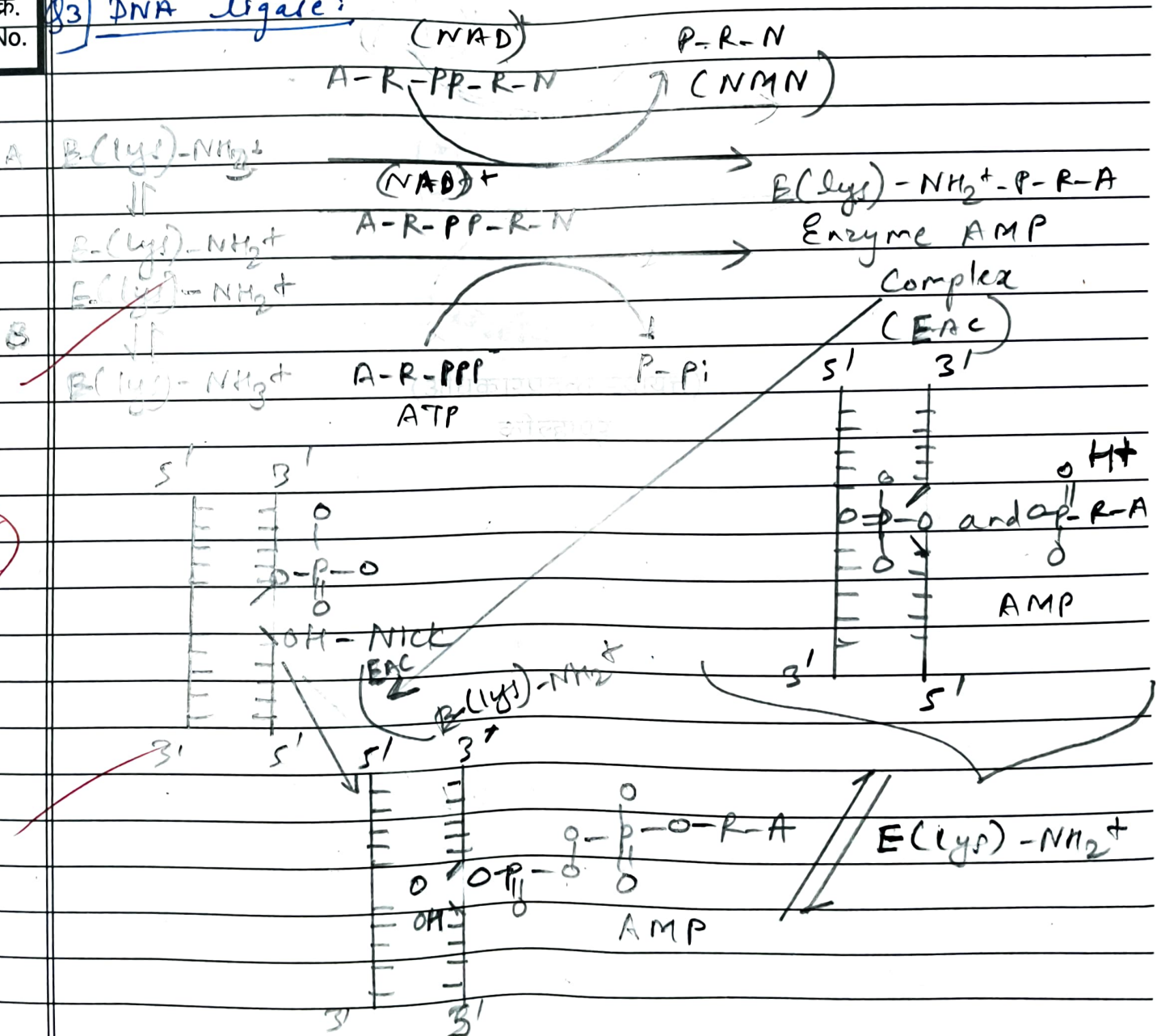

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Fig : Mechanism of DNA ligase : AMP complex formation, sealing of nick of double stranded DNA. NMN- Nicotinamide Mononucleotide.

Mertz and Davis (1972) for 1st time demonstrated cohesive terminal of cleaved DNA were covalently sealed by DNA ligase of E-coli were able to produce recombinant DNA. DNA ligase seals the nick of single stranded nick in DNA molecule having 5'-3' OH (Hydroxyl) terminus. 2 enzymes required for covalent joining of restriction fragments are E-coli DNA ligase & T4 phage. Main source of DNA ligase is T4 phage. Hence, it is called T4 DNA ligase. For joining reaction, E- coli DNA ligase used NAD^+ as cofactor & T4 phage uses ATP. Both enzyme contain $-NH_2$* group on lysine residue. Cofactor breaks into AMP adenylating enzyme (E) to form Enzyme AMP Complex (EAC). EAC binds to nick containing 3' OH and 5' PO4 end of double stranded DNA. 5' phosphorylated end of DNA is adenylated by EAC to 3' OH and leads to formation of phosphodiester & liberation of AMP. After liberation of AMP, nick is sealed. E-coli DNA ligase binds to cohesive terminal of restriction enzyme & T4 phage binds to the blunt end. Cohesive end ligation is 100 times

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faster than blunt end ligation. other advantage of T4 phage is that it can join quickly & form full base pairs but it is difficult to retrieve inserted DNA from vector.