

**BHARATHIAR UNIVERSITY, COIMBATORE-641 046.**  
**B.Sc., BIOTECHNOLOGY DEGREE COURSE (Affiliated Colleges)**  
**(FOR THE CANDIDATES ADMITTED FROM THE ACADEMIC YEAR 2023-24 onwards)**  
**SCHEME OF EXAMINATION - CBCS PATTERN**

Part	Sub code	Study Components - Course title	Ins.hrs/ week	Examinations				Credit
				Due/Hrs	CIA	CEE	Total Marks	
<b>Semester-I</b>								
I	11T/11H/ 11F	Language-I	6	3	25	75	100	4
II	12E	English-I	6	3	25	75	100	4
III	13A	Core Paper-I: Cell biology	5	3	25	75	100	4
III	13B	Core Paper-II: Bioinstrumentation	4	3	25	75	100	4
III	-	Practical-I: Cell Biology, Bioinstrumentation, and Microbiology	3	-	-	-	-	-
III	1AA	Allied A: Paper-I: Basic Mathematics	4	3	20	55	75	3
IV	1FA	Environmental Studies *	2	3	-	50	50	2
		<b>Total</b>	<b>30</b>	<b>18</b>	<b>120</b>	<b>405</b>	<b>525</b>	<b>21</b>
<b>Semester-II</b>								
I	21T/21H/ 21F	Language-II	6	3	25	75	100	4
II	22E	English-II	4	3	25	25	50 <sup>@</sup>	2
II	-	Naan Mudhalvan - Language Proficiency for Employability – Effective English <a href="http://kb.naanmudhalvan.in/Special:Filepath/Cambridge_Course_Details.pdf">http://kb.naanmudhalvan.in/Special:Filepath/Cambridge_Course_Details.pdf</a>	2	-	25	25	50 <sup>#</sup>	2
III	23A	Core Paper-III: Microbiology	5	3	25	75	100	4
III	23P	Core Practical-I: Cell Biology, Bioinstrumentation, and Microbiology	4	3	40	60	100	4
III	2AH	Allied-A: Paper-II - Chemistry	4	3	20	55	75	3
III	2PH	Allied Practical: Chemistry	3	3	20	30	50	2
IV	2FB	Value Education-Human Rights*	2	3	-	50	50	2
		<b>Total</b>	<b>30</b>	<b>21</b>	<b>180</b>	<b>395</b>	<b>575</b>	<b>23</b>
<b>Semester-III</b>								
I	31T/31H/ 31F	Language-III	6	3	25	75	100	4
II	32E	English-III	6	3	25	75	100	4
III	33A	Core Paper-IV: Biochemistry	4	3	25	75	100	4
III	33B	Core Paper-V: Genetics	4	3	25	75	100	4
III		Core Practical-II: Genetics & Biochemistry	2	-	-	-	-	-
III	3AA	Allied B: Paper I - Computer Applications I: Introduction to Computers	3	3	20	55	75	3
IV	3ZA	Skill Based Subject-1: Human Physiology	3	3	20	55	75	3
IV	3FB/3FC/ 3FD/3FG	Tamil ** / Advanced Tamil * (OR) Non-major Elective-I (Yoga for Human Excellence * / Women's Rights *)	2	3	-	50	50	2
	-	<b>Naan Muthalvan Course: Advanced Technology for Employability in Life Science</b>	-	-	<b>25</b>	<b>75</b>	<b>100</b>	<b>2</b>
		<b>Total</b>	<b>30</b>	<b>21</b>	<b>165</b>	<b>535</b>	<b>700</b>	<b>26</b>

<b>Semester-IV</b>									
I	41T/41H/ 41F	Language-IV	5	3	25	75	100	4	
II	42E	English-IV	5	3	25	75	100	4	
III	43A	Core Paper-VI: Molecular Genetics	4	3	25	75	100	4	
III	43P	Core Practical-II: Genetics & Biochemistry	3	3	40	60	100	4	
III	4AA	Allied B: Paper II – Computer Applications II - ‘C’ and Python Programming	3	3	25	25	50	2	
III	43Q	Allied Practical: Computer Applications I & II	2	3	20	30	50	2	
IV	4ZB	Skill Based Subject-2: Human Pathology	3	3	25	25	50	2	
IV	-	Naan Muthalvan Course: Digital Skills for Employability – Office Fundamentals <a href="http://kb.naanmudhalvan.in/Bharathiar_University_(BU)">http://kb.naanmudhalvan.in/Bharathiar_University_(BU)</a>	3	-	25	25	50 <sup>#</sup>	2	
IV	4FB/4FE	Tamil** /Advanced Tamil* (OR) Non-major elective - II (General Awareness*)	2	3	-	50	50	2	
<b>Total</b>			<b>30</b>	<b>24</b>	<b>210</b>	<b>440</b>	<b>650</b>	<b>26</b>	
<b>Semester-V</b>									
III	53A	Core paper-VII: Plant & Animal Biotechnology	4	3	25	75	100	4	
	53B	Core Paper-VIII: Immunology	4	3	25	75	100	4	
	53C	Core Paper-IX: Environmental Biotechnology	4	3	25	75	100	4	
	53D	Core Paper-X: Recombinant DNA Technology	4	3	25	75	100	4	
	-	Core Practical-III: Immunology and Plant Tissue Culture	4	-	-	-	-	-	
	-	Core Practical-IV: Microbial Biotechnology & rDNA technology	3	-	-	-	-	-	
	5EA/5EB/5EC	Elective-I	4	3	25	75	100	4	
IV	5ZC	Skill Based Subject-3: Diagnostic Tools	3	3	20	55	75	3	
	-	Naan Muthalvan Course: Advanced Technology for Employability in Life Science	-	-	25	75	100	2	
<b>Total</b>			<b>30</b>	<b>18</b>	<b>170</b>	<b>505</b>	<b>675</b>	<b>25</b>	
<b>Semester-VI</b>									
III	63A	Core Paper-XI: Microbial Biotechnology	4	3	25	75	100	4	
	63P	Core Practical-III: Immunology and Plant Tissue Culture	6	6	40	60	100	4	
	63Q	Core Practical-IV: Microbial Biotechnology & rDNA technology	6	6	40	60	100	4	
	6EA/6EB/6EC	Elective-II	4	3	12	38	50	2	
	6ED/6EE/6EF	Elective-III	4	3	12	38	50	2	
IV	6ZD	Skill Based Subject-4: Pharmacology	3	3	20	55	75	3	
	-	Naan Muthalvan Course: Medical Coding for Employability <a href="http://kb.naanmudhalvan.in/images/d/d7/Medical_Coding.pdf">http://kb.naanmudhalvan.in/images/d/d7/Medical_Coding.pdf</a>	3	-	25	25	50 <sup>#</sup>	2	
V	67A	Extension Activities/Internship Training (Research Institute/ Industry) **	-	-	50	-	50	2	
<b>Total</b>			<b>30</b>	<b>24</b>	<b>224</b>	<b>351</b>	<b>575</b>	<b>23</b>	
<b>Grand Total</b>							<b>3700</b>	<b>144</b>	
<i>UGC-SWAYAM online /MOOC courses</i>			<i>Optional</i>						

\*\*No University Examinations. Only Continuous Internal Assessment (CIA)

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@University Semester examination will be conducted for 50 marks (As per the existing pattern of examination) and the marks will be converted to 25 marks.

The change in the INSTRUCTION HOURS and CREDIT POINTS adjusted for the inclusion of Naan Muthalvan Courses in 2<sup>nd</sup>, 4<sup>th</sup> and 6<sup>th</sup> Semesters.

**(In 3<sup>rd</sup> & 5<sup>th</sup> semesters, only CREDIT POINTS had been added and highlighted)**

#**Naan Mudhalvan** – Skill courses- external 25 marks will be assessed by Industry and internal will be offered by respective course teacher.

List of Elective papers* (Colleges can choose any one of the papers as an elective)		
Elective – I	A	Agricultural Biotechnology
	B	Bioremediation
	C	Introduction to Bioinformatics
Elective – II	A	Medical Biotechnology
	B	Biotechnological approach for wastewater treatment
	C	Genomics
Elective – III	A	Industrial Biotechnology
	B	Bioethics & Biosafety
	C	Proteomics

*\*Elective papers as listed above or any other new elective can be added based on the need, which can be approved by the University authorities.*

## B.Sc., Biotechnology

### Question paper format to be followed for Core Practical Examination

Total Marks: 60

No. of Hours: **3 Hrs for Practical - I & II**

I Major A	20 Marks
II Minor B	10 Marks
III Set Up C	10 Marks
III Identify the Spotters: D, E, F, G & H and comment on it (Identification: 1 mark and description: 1 mark)	5 x 2 = 10 Marks
IV Viva	5 Marks
V Record	5 Marks

**Note: 2 sets or 2 lots of question papers are preferable for a minimum of 15 students/batch**

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## B.Sc., Biotechnology

### Question paper format to be followed for Core Practical Examination

Total Marks: 60

No. of Hours: **6 Hrs for Practical - III & IV**

I Major A	15 Marks
II Minor B	10 Marks
III Minor C	10 Marks
IV Identify the spotters: D, E, F, G & H and Comment on it (Identification: 1 mark and description: 1 mark)	5 x 3 = 15 Marks
V Viva	5 Marks
VI Record	5 Marks

**Note: 2 sets or 2 lots of question papers are preferable for a minimum of 15 students/batch**

**Distribution of Marks for Continuous Internal Assessment (CIA) and Comprehensive External Examinations (CEE)**

Paper	Maximum Marks	Marks for		Components for CIA		
		CIA	CEE	Tests	Assignment	Others*
Theory (Core / Elective)	50	12	38	09	03	-
Theory (Core / Elective)	75	20	55	10	05	05
Theory (Core / Elective)	100	25	75	15	05	05

\*Components for 'others' may include the following:

Class Participation, Case Studies Presentation, Field Work, Field Survey, Group Discussion, Term Paper, Workshop / Conference Participation, Presentation of Papers in Conferences, Quiz, Report / Content Writing, Seminars, etc.

**Distribution of Marks for Continuous Internal Assessment (CIA) and Comprehensive External Examinations (CEE)**

Paper	Maximum Marks	Marks for		Components for CIA		
		CIA	CEE	Tests	Observation Note	Record Note
Practical (Core / Elective)	50	20	30	10	05	05
Practical (Core / Elective)	75	30	45	20	05	05
Practical (Core / Elective)	100	40	60	30	05	05

**Pattern of Question Paper – (for core - theory and elective subjects)**

The question paper for each of the core and elective papers shall consist of three sections. While Section A shall contain 10 objective type questions, Section B and Section C shall contain questions of descriptive nature. Internal choice (either / or type) shall be given in Section B and Section C. In Section A, there shall be two questions each with four multiple choices from each of the five units. In Sections B and C, there shall be one question with internal choice (either/or type) from each of the five units. The composition of the question paper shall be as given below:

Time: Three Hours

Max. Marks: 75

Section A – (10 x 1 = 10)  
Answer *All* the questions  
Each question carries *one* mark

*Choose the correct answer*

Q. No.1. – Q. No. 10 - Objective questions with four multiple choices

Section B – (5 x 5 = 25)  
Answer all the questions  
Each question carries *five* marks

Q. No. 11 – Q. No. 15 - Questions with internal choices (either (a) or (b) type)

Section C – (5 x 8 = 40)  
Answer all the questions  
Each question carries *eight* marks

Q. No. 15 – Q. No. 20 - Questions with internal choices (either (a) or (b) type)

Time:  Hours

Max. Marks: 38

Section A – (5 x 1 = 5)  
Answer *All* the questions  
Each question carries *one* mark

Q. No.1. – Q. No. 5 - Objective questions with four multiple choices

Section B – (5 x 3 = 15)  
Answer all the questions  
Each question carries *three* marks

Q. No. 6 – Q. No. 10 - Questions with internal choices (either (a) or (b) type)

Section C – (3 x 6 = 18)  
Answer all the questions  
Each question carries *six* marks

Q. No. 11 – Q. No. 13 - Questions with internal choices (either (a) or (b) type)