

**ORDINANCES AND OUTLINES OF TESTS,
SYLLABI AND COURSE OF READING
FOR
BACHELOR OF SCIENCE IN BIOTECHNOLOGY
(B.Sc Biotechnology)
PART-I
(Semester I & II)
FOR
2016-17 & 2017-18 SESSIONS
UNDER CHOICE BASED CREDIT SYSTEM
OF
UNIVERSITY GRANTS COMMISSION**



DEPARTMENT OF BIOTECHNOLOGY
GENERAL SHIVDEV SINGH DIWAN GURBACHAN SINGH
KHALSA COLLEGE PATIALA
An Autonomous College
NAAC Accredited 'A' Grade
College with Potential for Excellence Status by UGC
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Preamble:

General Shivdev Singh Diwan Gurbachan Singh Khalsa College Patiala, accredited 'A' grade by NAAC (2015), recognized as "College with Potential for Excellence" status by UGC, New Delhi (2016) and an Autonomous College (2016), is a premier institute of higher education in the state of Punjab since 1960. Being concordant with the need to the creation of a self-sustaining, global knowledge society, the college has undertaken several measures initiated by UGC to bring equity, efficiency and excellence in the Higher Education System of the country.

The important measures taken to enhance academic standards and quality in higher education include innovation and improvements in curriculum, teaching-learning process, examination and evaluation systems, besides governance and other matters.

The UGC has formulated various regulations and guidelines from time to time to improve the higher education system and maintain minimum standards and quality across the Higher Educational Institutions (HEIs) in India. The academic reforms recommended by the UGC in the recent past have led to overall improvement in the higher education system. However, due to lot of diversity in the system of higher education, there are multiple approaches followed by Higher Educational Institutions towards examination, evaluation and grading system. While the HEIs must have the flexibility and freedom in designing the examination and evaluation methods that best fits the curriculum, syllabi and teaching-learning methods, there is a need to devise a sensible system for awarding the grades based on the performance of students. Presently, the performance of the students is reported using the conventional system of marks secured in the examinations or grades or both. The conversion from marks to letter grades and the letter grades used vary widely across the HEIs in the country. This creates difficulty for the academia and the employers to understand and infer the performance of the students graduating from different universities and colleges based on grades.

The grading system is considered to be better than the conventional marks system and hence it has been followed in the top institutions in India and abroad. So, it is desirable to introduce uniform grading system. This will facilitate student mobility across institutions within and across countries and also enable potential employers to assess the performance of students. To bring in the desired uniformity in grading system and method for computing the cumulative grade point average (CGPA) based on the performance of students in the examinations, the UGC has formulated CBCS guidelines.

Outlines of Choice Based Credit System:

- 1. Core Course:** A course, which should compulsorily be studied by a candidate as a core requirement is termed as a Core course.
- 2. Elective Course:** Generally, a course which can be chosen from a pool of courses and which may be very specific or specialized or advanced or supportive to the discipline/ subject of study or which provides an extended scope or which enables an exposure to some other discipline/subject/domain or nurtures the candidate's proficiency/skill is called an Elective Course.

2.1 Discipline Specific Elective (DSE) Course: Elective courses offered under the main discipline/subject of study is referred to as Discipline Specific Elective.

2.2 Dissertation/Project: An elective course designed to acquire special/advanced knowledge, such as supplement study/support study to a project work, and a candidate studies such a course on his own with an advisory support by a teacher/faculty member is called dissertation/project.

2.3 Generic Elective (GE) Course: An elective course chosen from an unrelated discipline/subject, with an intention to seek exposure beyond discipline/s of choice is called a Generic Elective. The purpose of this category of papers is to offer the students the option to explore disciplines of interest beyond the choices they make in Core and Discipline Specific Elective papers.

P.S.: A core course offered in a discipline/subject may be treated as an elective by other discipline/subject and vice versa and such electives may also be referred to as Generic Elective.

3. Ability Enhancement Courses (AEC): The Ability Enhancement (AE) Courses may be of two kinds: Ability Enhancement Compulsory Courses (AECC) and Skill Enhancement Courses (SEC). "AECC" courses are the courses based upon the content that leads to Knowledge enhancement; i. Environmental Science and, ii. English/Hindi/Modern Indian Language (MIL) Communication. These are mandatory for all disciplines. SEC courses are value-base and/or skill-based and are aimed at providing hands-on-training, competencies, skills, etc.

3.1 Ability Enhancement Compulsory Courses (AECC): Environmental Science, English Communication/Hindi Communication/MIL Communication.

3.2 Skill Enhancement Courses (SEC): These courses may be chosen from a pool of courses designed to provide value-based and/or skill-based knowledge.

4. Practical/tutorials: The practicals/tutorials will be conducted keeping in view the spirit of UGC guidelines as per the needs and requirements of the concerned subject.

Project work/Dissertation is considered as a special course involving application of knowledge in solving / analyzing /exploring a real life situation / difficult problem. A Project/Dissertation work would be of 6 credits. A Project/Dissertation work may be given in lieu of a discipline specific elective paper.

DEFINITIONS

a. Academic Year: Two consecutive (one odd + one even) semesters constitute one academic year.

b. Course: Usually referred to, as 'papers' is a component of a programme. All courses need not carry the same weight. The courses should define learning objectives and learning outcomes. A course may be designed to comprise lectures/tutorials/laboratory work/field work/outreach activities/ project work/vocational training/viva/seminars/term papers /assignments/ presentations/self study etc. or a combination of some of these.

- c. **Credit Based Semester System (CBSS):** Under the CBSS, the requirement for awarding a degree or diploma or certificate is prescribed in terms of number of credits to be completed by the students.
- d. **Credit Point (CP):** The numerical value obtained by multiplying the grade point (GP) by the no. of credit(C) of the respective course i.e. $CP = GP \times C$.
- e. **Credit(C):** A unit by which the course work is measured. It determines the number of hours of instructions required per week. One credit is equivalent to one hour of teaching (lecture or tutorial) or two hours of practical work/field work per week, i.e. a course with assigned L-T-P: 3-0-2 or 3-1-0 will be equivalent to 4 credits weight-age course.
- f. **Cumulative Grade Point Average (CGPA):** It is a measure of overall cumulative performance of a student over all semesters. The CGPA is the ratio of total credit points secured by a student in various courses in all semesters and the sum of the total credits of all courses in all the semesters. It is expressed up to two decimal places.
- g. **Grade Point (GP):** It is a numerical weight allotted to each letter grade on a 10 point scale.
- h. **Letter Grade:** It is an index of the performance of students in a said course. Grades are denoted by letters O, A+, A, B+, B, C, P and F.
- i. **Programme:** An educational programme leading to award of a degree, diploma or certificate.
- j. **Semester Grade point Average (SGPA):** It is a measure of performance of work done in a semester. It is ratio of total credit points (CPs) secured by a student in various courses registered in a semester and the total course credits taken during that semester. It shall be expressed upto two decimal places.
- k. **Semester:** Each semester will consist of 15-18 weeks of academic work equivalent to 90 actual teaching days. The odd semester may be scheduled from July to December and even semester from January to June.
- l. **Transcript or Grade Card (GC) or Certificate:** Based on the grades earned, a grade certificate shall be issued to all the registered students after every semester. The grade certificate will display the course details (code, title, no. of credits, grades secured) along with SGPA of that semester and CGPA earned till date semester.
- m. **Semester Examinations:** The comprehensive examinations conducted for summative evaluation of course. The duration of these examinations shall be 3 and 4 hours for theory and practical courses respectively; and the weight shall be as per the ordinance of relevant programme.
- o. **L-T-P:** The prescribed hours/week during a semester for Lecture-Tutorial-Practical to a particular course, in accordance with curriculum prescriptions based on respective nature.

ORDINANCES FOR BACHELOR OF SCIENCE IN BIOTECHNOLOGY

Applicability of Ordinances for the time being in force.

Notwithstanding the integrated nature of a course spread over more than one academic year, the Ordinances in force at the time a student joins a course shall hold good only for the examination held during or at the end of the academic year. Nothing in these Ordinances shall be deemed to debar the College from amending the ordinances subsequently and the amended ordinances, if any, shall apply to all the students whether old or new.

1. B.Sc. BT is an integrated course comprising three parts spread over three years. Each part will consist of two semesters. The course of study of B.Sc. BT shall be divided in six semesters and the final examination will be held at the end of every semester in the months of November/December (for semester I,III &V) and April/May (for semester II, IV & VI) or as fixed by the College.
2. The examination in B.Sc.BT Part-I shall be open to a student who produces the following certificates to the Principal of the college.

(i) of having passed at least +2 examination of Punjab School Education Board / C.B.S.E. / I.C.S.E. or any other examination recognized as equivalent thereto with at least :

(a) 50% marks in the aggregate in case of students who have passed 10+2 Science group.

OR

(b) 55% marks in the aggregate in case of students who have passed any vocational course in Science which is equivalent to 10+2 in Science.

Note: Candidate placed under reappear in one or more subjects in 10+2 examination of Punjab School Education Board or any other examination, recognized as equivalent thereto shall not be eligible for admission to B.Sc. BT Part-I Course.

(ii) of having remained on the rolls of a college admitted to the privileges of the University for the academic year preceding the examinations.

(iii) of having good character.

2.1 To qualify for admission to 3rd semester of the course, the candidate must have passed 50% of total papers of the two semesters of the 1st year. In case, the result of 2nd semester is not declared at the time of admission to 3rd semester, the student may be admitted provisionally and will be allowed to take examination of 3rd semester if he/she has passed in 50% of the total papers of first year (i.e. 1st and 2nd semester). Similarly, to qualify for admission to 5th semester of the course, the student may be admitted provisionally if the result of the previous semester has not been declared and will be allowed to take examination of 5th semester, if he/she has passed 50% of the total papers of previous semesters.

3. A candidate must complete and pass the whole course of three years within a maximum of six years from the date of admission in B.Sc. BT First semester. If the candidate does

not clear the lower examination within stipulated period the higher result of the candidate will stand automatically cancelled.

4. Semester examinations will be open to regular candidates who have been on the rolls of the college and meet the attendance and other requirements as prescribed in the ordinances of the course.

5. Examination Rules

5.1 Paper Setting/Evaluation will be done by an External Examiner or as decided by the Examination Cell.

5.2 The supplementary examination will be held along with the routine End Semester Tests. The supplementary paper would be from the syllabi prescribed for that session in which the candidate is appearing. The student can appear only in the theory paper on the payment of the required fee. The candidate will have consecutive two attempts to clear the Supplementary Examination, marks of practical and internal assessment will be carryforward as original.

5.3 Re-evaluation of answer sheet in two subjects is allowed after paying the requisite fee. The application for Re-evaluation should be submitted within 15 days of the declaration of the results. In case there is a difference of more than 10 % between the marking of the First evaluator and the Second evaluator, then the paper would be sent to a Third Evaluator. The mean of the marks of the Second and Third evaluators is then considered as the final marks. The re-evaluated marks will be considered final irrespective of the increase or decrease in marks.

5.4 The students who have reappear in the Vth semester only of Three Year Degree Course at Undergraduate Level will be allowed to appear in their Reappear examination along with the Final Semester Examinations of their respective courses.

5.5 The Principal can provide Golden Chance (with special chance fee) to students who have been unable to clear their exams even after two attempts.

5.6 IMPROVEMENT EXAMINATIONS:

- I. A student who has been declared 'pass' in the Undergraduate course he/she was admitted to, may apply for improvement within a year from the declaration of the result of the final semester and he/she can take maximum of 50% of the total papers for that course for improvement.
- II. A student shall have to appear in End semester examination of the paper chosen for improvement along with the regular students. No special exam shall be held for him/her.
- III. If a student fails to improve upon the original marks obtained in the paper chosen for improvement, his/her original marks shall be retained and he/she shall not get a second chance for improvement.
- IV. Improvement examination in practical paper shall not be allowed.
- V. A student taking improvement examination shall have to pay a fee decided by the college.

5.7 Grading System:

The grades and their description, along with equivalent numerical grade points are listed in the Grading Assignment Table as follows:

Grade Assignment Table

Range of Marks	Description	Grade	Grade Point
85-100	Outstanding	O	10
75-84	Excellent	A+	9
65-74	Very Good	A	8
55-64	Good	B+	7
50-54	Above Average	B	6
45-49	Average	C	5
35-44	Pass	P	4
0-34	Fail	F	0
Otherwise	Absent/Detained	Ab./D	0

- a. A student obtaining Grade F shall be considered failed and will be required to reappear in the examination.
- b. For non credit courses '**Satisfactory**' or '**Unsatisfactory**' shall be indicated instead of the letter grade and this will not be counted for the computation of SGPA/CGPA.

5.8 Computation of SGPA and CGPA

The UGC recommends the following procedure to compute the Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA):

- a. The SGPA is the ratio of sum of the product of the number of credits with the grade points scored by a student in all the courses taken by a student and the sum of the number of credits of all the courses undergone by a student, i.e.

$$\text{SGPA (Si)} = \frac{\sum(\text{Earned Credits } C_i \times \text{Grade Point } G_i)}{\sum \text{Earned Credits } C_i}$$
 Where C_i is the number of credits of the i th course and G_i is the Grade Point Scored by the student in the i th course.
- b. The CGPA is also calculated in the same manner taking into account all the courses undergone by a student over all the semesters of a programme, i.e.

$$\text{CGPA (Ci)} = \frac{\sum(\text{Earned Credits } C_i \times \text{SGPA } S_i)}{\sum C_i}$$
 Where S_i is the SGPA of the i th semesters and C_i is the total number of credits in that semester.
- c. The SGPA and CGPA shall be rounded off to 2 decimal points and reported in the transcripts.

Illustration of the computation of SGPA and CGPA and Format for Transcripts

i. Computation of SGPA and CGPA

Illustration for SGPA

Course	Credits	Grade Letter	Grade Point	Credit Point (Credit x Grade)
Course 1	3	A	8	3 X 8 = 24
Course 2	4	B+	7	4 X 7 = 28
Course 3	3	B	6	3 X 6 = 18
Course 4	3	O	10	3 X 10 = 30
Course 5	3	C	5	3 X 5 = 15
Course 6	4	B	6	4 X 6 = 24
	20			139

Thus, **SGPA = 139/20 = 6.95**

Illustration for CGPA

Semester 1	Semester 2	Semester 3	Semester 4
Credit : 20 SGPA : 6.9	Credit : 22 SGPA : 7.8	Credit : 25 SGPA : 5.6	Credit : 26 SGPA : 6.0
Semester 5	Semester 6		
Credit : 26 SGPA : 6.3	Credit : 25 SGPA : 8.0		

Thus, **CGPA = $\frac{20 \times 6.9 + 22 \times 7.8 + 25 \times 5.6 + 26 \times 6.0 + 26 \times 6.3 + 25 \times 8.0}{144} = 6.73$**

ii. Transcripts (Format):

Based on the above recommendations on Letter grades, grade points, SGPA and CGPA, the College may issue the transcript for each semester and a consolidated transcript indicating the performance in all semesters.

5.9 Division and Position:

Division shall be awarded in the following manner, to the candidates on the basis of their respective CGPA:

CGPA 7.5 or more	1st	Division with Distinction
CGPA 6.0 or more but less than 7.5	1st	Division
CGPA 5.0 or more but less than 6.0	2 nd	Division
CGPA 3.5 or more but less than 5.0	3 rd	Division
Otherwise	Fail	

However, First, Second or Third position shall be awarded to the candidates, provided they meet the following conditions:

- a) Rank shall be solely decided on the final CGPA, on completion of degree credit requirement.

- b) The candidate has completed all the prescribed requirements, in the prescribed programme duration.
- c) The candidate has passed / secured valid grades in all the prescribed courses, in the first attempt.
- d) No disciplinary action is pending or has ever been lodged against him/her.
- e) In case of an exceptional tie, both candidates shall be awarded the same rank.

5.10 Grade Card:

At the end of each semester, a student will be given a 'Grade Card' which will contain Course Code, Title, Credits, Grades Awarded, Earned Credits and Earned Point secured by him/her in each course, together with his/her SGPA in that semester. On the completion of the programme, a Final Grade Card will be issued to the student, giving full semester-wise details about the absolute marks and grades obtained by him/her in each course together with his/her SGPA and also the CGPA and Division awarded to him/her.

5.11 Equivalence:

Percentage (P) equivalent to CGPA earned by a candidate may be calculated using the following formula:

$$P = \text{CGPA} \times 10$$

5.12 MALPRACTICES/UNFAIR MEANS

5.12.1 The following shall be deemed to be unfair means:

- I. Leaving the Examination Hall without submitting the answer book to the invigilator or taking away, tearing off or otherwise disposing off the same or any part thereof.
- II. Using abusive language in the examination hall or writing the same in the answer sheet.
- III. Making an appeal to the evaluator through answer sheet.
- IV. Possession by examinee or having access to books, notes, papers, mobile or any other electronic material which can prove to be helpful in the exam.
- V. Any action on the part of candidate at an examination trying to get undue advantage in the performance at examinations or trying to help another, or derive the same.
- VI. Impersonating for a candidate in the examination.
- VII. Intimidating, threatening, manhandling, using violence, show of force in any form against any invigilator or any person on duty, creating disturbance to the smooth conduct of the examination.
- VIII. Any other action which the Controller Examination / Chief Controller deem fit to be a case of UMC.

5.12.2 In case the student is found to have used any of the above Unfair means:

- I. His/her answer book shall be seized and He/She will be given a new answer sheet.

- II. Invigilator shall submit a detailed report along with the answer book of the student and the related material, if any, to the Centre Superintendent who will subsequently hand it over to Controller Examination.
 - III. Written statement to this effect shall be obtained from the student by the Centre Superintendent. In case the student refuses to do the same, the fact of refusal must be recorded.
 - IV. The student reported to have used unfair means shall be allowed to appear in the subsequent papers. However, no marks would be awarded for the paper in which unfair means were used.
 - V. The Principal shall refer the cases of malpractices in Mid Semester tests, House Tests and End Semester Examinations, to an Unfair Means Committee, constituted by him/her for the purpose. Such committee shall follow the approved scales of punishment. The Principal shall take necessary action, against the erring students based on the recommendations of the committee.
- 5.12.3** The involvement of the Staff, who are in charge of conducting examinations, evaluating examination papers and preparing/keeping records of documents relating to the examinations if involved in such acts (inclusive of providing incorrect or misleading information) that infringe upon the course of natural justice to one and all concerned at the examination shall be viewed seriously and recommended for award of appropriate punishment after enquiry.
- 6. Attendance Regulations & Condonation:**
- 6.1** A student shall be eligible to appear for end semester examinations, if he/she acquires a minimum of 75% of attendance in each subject.
 - 6.2** Request to the Principal for Condonation of shortage of attendance after the recommendation of the HOD will be forwarded to Lecture Shortage Condonation Committee. The committee can finally condone the shortage in aggregate up to 15% on medical grounds in each semester.
 - 6.3** Any student representing the Institute/ University/ State/ Nation in any Academic/ Sports/ Cultural/Extra Co curricular/ NSS/NCC or any other event shall be considered on duty. His/ Her shortage of lectures shall be condoned, provided that the student is permitted in writing by the Principal/HOD concerned and a certificate to this effect signed by the competent authority where the student attended the event is taken.
 - 6.4** A Student will not be promoted to the next semester unless he/she satisfies the attendance requirement of the present semester as applicable.
 - 6.5** Students whose shortage of attendance is not condoned in any semester are not eligible to take their end semester examination of that particular semester and their registration for examination shall stand cancelled and no fee shall be refunded.

7. Late college students: A candidate, who has completed the prescribed course of instructions for a semester but has not appeared in the examination or having appeared, has failed in the examination, may appear as a late college student within the prescribed period.
8. Applications for admission to the examination shall be made on the prescribed form attested by the competent authority as per the college rules.
9. Amount of examination fee to be paid by a candidate for each semester shall be as fixed by the College from time to time.
10. The last date by which examination forms and fees must reach the College Office shall be as follows.

Semester	Without late fee	With late fee of Rs. 800/-	With late fee of Rs.1200/-	With late fee of Rs.5000/-	With late Fee of Rs. 10,000
Nov./Dec. (Odd)	Sept. 30	Oct.15	Oct. 21	Oct. 31	Nov. 10*
April/May(Even)	Feb. 28	March 15	March 21	March 31	April 15*

***Note: No Examination Form will be accepted after the prescribed date.**

11. College medal will be awarded to a candidate who secures first position in the College on the basis of the marks of all the six semesters taken together. The general rules and conditions of the College/University for the Award of medal/prizes etc. will be applicable in the award of College medal to the topper of this examination.
12. Viva Voce/ Practical examination shall be conducted by a Committee consisting of the following:
 - (i) One external examiner
 - (ii) One internal examiner
13. All the question papers except Punjabi will be set in English only and candidates will answer the questions in English Only. The paper in Punjabi language will be set in Punjabi only and candidate will be required to answer in Punjabi only.
- 13.1 A student can opt for Elementary Punjabi under the following conditions:
 - (i) Those students who have passed their Matric Examination outside the State of Punjab and have not opted for Punjabi Subject.
 - (ii) Wards of Defense Personnel/Para-Military Personnel can opt for Elementary Punjabi.
 - (iii) Children of NRI, NRE and Foreign Students.
14. The minimum number of marks required to pass each semester examination will be 35% in each paper and 35% in the aggregate of the semester examination. Provided,

that in papers with practicals, the percentage shall be required separately in written and practical/lab work.

15. Assessment:

15.1 B.Sc. BT Course will be run on Choice Based Credit System (CBCS) as described in the Introduction.

15.2 The Assessment in each semester of B. Sc. BT Course will be 30% internal and 70% external for each Theory paper. The result of the Internal Assessment shall be conveyed to the students/examination branch by the Head of the Department according to prescribed schedule.

15.3 There shall be Two Mid Semester tests in each Semester.

15.4 Internal Assessment of 30% will be based on Continuous Comprehensive Assessment (CCA) pattern and the breakup of 30% will be as under:

(i)	Best of Two mid Semester Tests	:	40%
(ii)	Assignment/Seminar/Class Test/Tutorial/Quiz etc.	:	40%
(iii)	Attendance	:	20%

Papers having practical/viva, the marks of theory and practical/viva will be reduced equally percentage wise to make room for 30% internal assessment.

Note: If a case comes to notice of Controller of Examinations where the marks awarded by the Teacher are on a very Higher/Lower side, the award will be got moderated by the following committee.

- I. Paper Evaluator
- II. Head of the Department
- III. Dean of Faculty concerned
- IV. Controller of Examination

15.5 The marks for attendance in internal assessment would be awarded according to the student's attendance percentage as follows:

91-100% attendance	100% marks of the allotted Internal Assessment marks for attendance
81-90% attendance	80% marks of the allotted Internal Assessment marks for attendance
75-80% attendance	70% marks of the allotted Internal Assessment marks for attendance
Below 75%	Zero marks

15.6 A candidate is required to secure at least 35% marks both in external examination (Theory and Practical/ Project work) and in internal assessment separately in each paper in order to qualify in an examination.

15.7 Students should be shown the internal assessment before submission. In case the student is dissatisfied with the marks awarded to him/her in internal assessment; he/she can approach the concerned teacher. If the student is still not satisfied he/she may approach the head of department and the Principal subsequently.

16. End-Semester Examination:

End-semester examination(s) of each theory course shall be of three hours duration and will be conducted as per norms and schedule notified by the Controller of Examination. The end semester examinations of laboratory/practical courses and other courses such as seminar, colloquium, field work, project, dissertation etc. shall be conducted as notified by the HOD.

17. Degree Requirement:

17.1 An undergraduate degree with Honours in a discipline may be awarded if a student completes 14 core papers in that discipline, 2 Ability Enhancement Compulsory Courses (AECC), minimum 2 Skill Enhancement Courses (SEC) and 4 papers each from a list of Discipline Specific Elective and Generic Elective papers, respectively.

An undergraduate degree in Science disciplines may be awarded if a student completes 14 core papers each in three disciplines of choice, 2 Ability Enhancement Compulsory Courses (AECC), minimum 4 Skill Enhancement Courses (SEC) and 2 papers each from a list of Discipline Specific Elective papers based on three disciplines of choice selected above, respectively.

An Undergraduate degree in Humanities/ Social Sciences/ Commerce may be awarded if a student completes 4 core papers each in two disciplines of choice, 2 core papers each in English and Hindi/MIL, respectively, 2 Ability Enhancement Compulsory Courses (AECC), minimum 4 Skill Enhancement Courses (SEC), 2 papers each from a list of Discipline Specific Elective papers based on the two disciplines of choice selected above, respectively, and two papers from the list of Generic Electives papers.

17.2 The result of all the examinations will be declared through the College website.

17.3 The grace marks shall be allowed according to the general ordinances relating to 'Award of Grace Marks'. These ordinances will apply to all examinations.

- (i) Grace marks to be given shall be calculated on the basis of 1% of total aggregate marks of all the written and practical papers of the examination concerned. Marks for viva-voice/internal assessment/sessional work/skill in teaching/any additional /optional subject shall not be taken into account for this purpose. If a fraction works out to half or more, it shall count as one mark and fractional less than half shall be ignored
- (ii) To pass in one or more written papers or subjects, and/or to make up the aggregate to pass the examination but not in sessional work, internal assessment, viva-voice and skill in teaching.

17.4 The College may from time to time revise, amend and change the regulations or the curriculum, if formed necessary.

- 17.5** The students will be given the facilities of transfer of Credits earned in different recognized/approved Institutions of Higher Education in India and Abroad.
- 17.6** A student who earns total specified credits according to the curriculum and fulfills such other conditions as may be mentioned in the curriculum of the programme, shall be issued the DMC and shall be awarded degree by Punjabi University Patiala. He/she must also pay all College dues as per rules. Moreover, there should be no case of indiscipline pending against him/her.
- 18.** If any student gets admission after concealing any fact or his/her certificates are found fake after verification or he/she misleads the institution as any front or because of any other reason, his/her admission will stand cancelled/ his/her result cancelled though he/she may have been declared pass.
- 19.** In case the ordinance is silent about any issue, it will be decided by the College Principal in consultation with the Academic Advisory Committee of the college in the anticipation of approval of the same by Academic Counsel of the College.

B.SC. BIOTECHNOLOGY (PART I)
(SEMESTER I & II)
UNDER CHOICE BASED CREDIT SYSTEM

SEMESTER I			
Course Number	Course title	Course type	Credit hours
BT 1.1	General Microbiology	Core Course-1	6: 4H(L)+4H(P)
BT 1.2	Chemistry I	Core Course-2	6: 4H(L)+4H(P)
BT 1.3	Any one of the following: A. Basic Biology B. Medical Diagnostics	Generic Elective-1	6: 4H(L)+4H(P)
BT 1.4	Punjabi Compulsory	Language-1	4: 3H(L)+2H(P)
BT 1.4-A	Elementary Punjabi		
BT 1.5	English Communication Skills	Ability-Enhancement Compulsory Course (AECC)-1	4: 3H(L)+2H(P)
TOTAL CREDIT HOURS			26

SEMESTER II			
Course Number	Course title	Course type	Credit hours
BT 2.1	Cell Biology	Core Course-3	6: 4H(L)+4H(P)
BT 2.2	Chemistry II	Core Course-4	6: 4H(L)+4H(P)
BT 2.3	Any one of the following: A. Advanced Microbiology B. Biotechnology and Human Welfare	Generic Elective-2	6: 4H(L)+4H(P)
BT 2.4	Punjabi Compulsory	Language-2	4: 3H(L)+2H(P)
BT 2.4 -A	Elementary Punjabi		
BT 2.5	English Communication Skills	Ability-Enhancement Compulsory Course (AECC)-2	4: 3H(L)+2H(P)
TOTAL CREDIT HOURS			26

B.SC. BIOTECHNOLOGY - I (SEMESTER I)**BT 1.1: GENERAL MICROBIOLOGY****6 Credits: 4H(L) + 4H(P)****Time: 3 hours**
Pass Marks: 35%**Maximum Marks: 100**
Theory: 50 marks
Practical: 20 marks
Internal Assessment: 30 marks

Objective: The purpose of this course is to help students become familiar with the fundamental scientific concepts and basic skills utilized in microbiology. The course includes an introduction to biology of microorganisms with their diversity, taxonomy and techniques for their identification.

Instruction for Paper Setter/Examiner

The question paper covering the entire course shall be divided into five parts: A, B, C, D & E.

Section-A

It will consist of 05 short answer questions from the entire syllabus. The candidates are required to attempt all the questions. Each question will carry 2 marks.

Section B, C, D & E

These will consist of 2 questions each from unit-I, II, III and IV of the syllabus and the candidates are required to attempt 1 question each from all the sections. Each question will carry 10 marks each. In numerical papers, there should be at least 1 numerical question each in any of the three sections of the paper.

Unit I

Introduction & Scope of microbiology, History of Microbiology, Microscope & Microscopy Techniques: Bright & Dark field microscopy, fluorescence microscopy, phase contrast microscopy, TEM & SEM. Fixation and fixatives, positive, negative, capsule staining, flagella staining, acid fast, Gram staining

Unit II

Prokaryotes: general account on characteristics, structure reproduction and functions of cell organelles of bacteria, archaebacteria, cyanobacteria, actinomycetes, mycoplasma and their economic importance.

Eukaryotes: General account of characteristics, morphology, nutrition, fine structure, & functions of cell organelles of molds & slime molds, yeast, algae, protozoa, etc. and their economic importance

Unit III

Microbiological diversity, microbial nomenclature, concept of microbial species, classification of microorganisms.

Microbial taxonomy: General methods of characterization, classification and identification of microorganisms.

Molecular techniques for identification of microorganisms; A brief account of Bergey's system of bacterial classification.

Unit IV

Bacteriophages & Cyanophages: Brief account of bacteriophages and cyanophages

Plant & animal viruses: Detailed structure and reproduction of plant viruses and animal viruses.

Microorganisms as geochemical agents: Cycles of matter (nitrogen, carbon, water, oxygen, sulphur and phosphorus).

PRACTICAL (Marks 20)

1. Introduction to microscopes and other laboratory equipments (Autoclave, Laminar air flow bench, Incubator, pH meter, Oven, Laboratory Shaker)
2. Structure and function of compound microscope.
3. Simple, negative, capsule, acid fast and gram staining of microorganisms.
4. Determination of viability of microorganism.
5. Microscope measurement of size of microorganism.
6. Hanging drop preparation to check the mobility/Brownian movements of microorganisms.
7. Biochemical and Morphological characterization of microorganism

SUGGESTED READINGS (Latest Edition):

1. Davis, B.D. Dullbecco R. Elisena dn Ginsberg H.S. (1990), Microbiology: 4th Ed. Harper & Row, Publishers, Singapore.
2. Tortora, G.J. Funke, B.R. and case, C.L. (1994, Microbiology : An introduction: 5th Ed. The Benjamin/Cummings Publishing Company, Inc.
3. Stainer, R.Y. (1995). General Microbiology. MacMillan Press, London.
4. Pelezar , M.T. (1995). Microbiology, Tata Mc Graw Hill Publishing, New Delhi.
5. Schlegel , H.G. (1995). General Microbiology 7th Ed., Cambridge Uni., Press.
6. Prescott and Dunn (1999). Industrial Microbiology 4th Ed. By S.K. Jain for CBS Publishers & Distributors, New Delhi.
7. Purobit,S.S. (2000). Microbiology: Fundamental and Applications (6th Ed). Agrobios, (India).
8. Postagate, J. (2000). Microbes & MAN 4TH Ed, Cambridge Uni., Press.
9. Tortora G.J. Funke B.R. (2001). Microbiology: An introduction. Benjamin Cummings.

B.SC. BIOTECHNOLOGY - I (SEMESTER I)**BT 1.2: CHEMISTRY I****6 Credits: 4H(L) + 4H(P)****Time: 3 hours**
Pass Marks: 35%**Maximum Marks: 150**
Theory: 70 marks
Practical: 35 marks
Internal Assessment: 30T+15P marks**Instruction for Paper Setter/Examiner**

The question paper covering the entire course shall be divided into five parts: A, B, C, D & E.

Section-A

It will consist of 10 short answer questions from the entire syllabus. The candidates are required to attempt all the questions. Each question will carry 3 marks.

Section B, C, D & E

These will consist of 2 questions each from unit-I, II, III and IV of the syllabus and the candidates are required to attempt 1 question each from all the sections. Each question will carry 10 marks each. In numerical papers, there should be at least 1 numerical question each in any of the three sections of the paper.

INORGANIC CHEMISTRY-1**UNIT-I**

Atomic Structure: Review of: Bohr's theory and its limitations, dual behaviour of matter and radiation, de Broglie's relation, Heisenberg Uncertainty principle. Hydrogen atom spectra. Need of a new approach to Atomic structure.

What is Quantum mechanics? Time independent Schrodinger equation and meaning of various terms in it. Significance of ψ and ψ^2 , Schrödinger equation for hydrogen atom. Radial and angular parts of the hydrogenic wavefunctions (atomic orbitals) and their variations for 1s, 2s, 2p, 3s, 3p and 3d orbitals (Only graphical representation). Radial and angular nodes and their significance. Radial distribution functions and the concept of the most probable distance with special reference to 1s and 2s atomic orbitals. Significance of quantum numbers, orbital angular momentum and quantum numbers m_l and m_s . Shapes of s, p and d atomic orbitals, nodal planes. Discovery of spin, spin quantum number (s) and magnetic spin quantum number (m_s).

Rules for filling electrons in various orbitals, Electronic configurations of the atoms. Stability of half-filled and completely filled orbitals, concept of exchange energy. Relative energies of atomic orbitals, Anomalous electronic configurations.

UNIT-II

Chemical Bonding and Molecular Structure

Ionic Bonding: General characteristics of ionic bonding. Energy considerations in ionic bonding, lattice energy and solvation energy and their importance in the context of stability and solubility of ionic compounds. Statement of Born-Landé equation for calculation of lattice energy, Born-Haber cycle and its applications, polarizing power and polarizability. Fajan's rules, ionic character in covalent compounds, bond moment, dipole moment and percentage ionic character.

Covalent bonding: VB Approach: Shapes of some inorganic molecules and ions on the basis of VSEPR and hybridization with suitable examples of linear, trigonal planar, square planar, tetrahedral, trigonal bipyramidal and octahedral arrangements.

Concept of resonance and resonating structures in various inorganic and organic compounds.

MO Approach: Rules for the LCAO method, bonding and antibonding MOs and their characteristics for s-s, s-p and p-p combinations of atomic orbitals, nonbonding combination of orbitals, MO treatment of homonuclear diatomic molecules of 1st and 2nd periods (including idea of s-p mixing) and heteronuclear diatomic molecules such as CO, NO and NO⁺. Comparison of VB and MO approaches.

ORGANIC CHEMISTRY-1

UNIT - III

Fundamentals of Organic Chemistry

Physical Effects, Electronic Displacements: Inductive Effect, Electromeric Effect, Resonance and Hyperconjugation. Cleavage of Bonds: Homolysis and Heterolysis.

Structure, shape and reactivity of organic molecules: Nucleophiles and electrophiles. Reactive Intermediates: Carbocations, Carbanions and free radicals.

Strength of organic acids and bases: Comparative study with emphasis on factors affecting pK values. Aromaticity: Benzenoids and Hückel's rule.

Stereochemistry

Conformations with respect to ethane, butane and cyclohexane. Interconversion of Wedge Formula, Newmann, Sawhorse and Fischer representations. Concept of chirality (upto two carbon atoms). Configuration: Geometrical and Optical isomerism; Enantiomerism, Diastereomerism and Meso compounds). Threo and erythro; D and L; *cis* - *trans* nomenclature; CIP Rules: R/ S (for upto 2 chiral carbon atoms) and E / Z Nomenclature (for upto two C=C systems).

UNIT-IV

Aliphatic Hydrocarbons

Functional group approach for the following reactions (preparations & reactions) to be studied in context to their structure.

Alkanes: (Upto 5 Carbons). *Preparation:* Catalytic hydrogenation, Wurtz reaction, Kolbe's synthesis, from Grignard reagent. *Reactions:* Free radical Substitution: Halogenation.

Alkenes: (Upto 5 Carbons) *Preparation:* Elimination reactions: Dehydration of alkenes and dehydrohalogenation of alkyl halides (Saytzeff's rule); cis alkenes (Partial catalytic hydrogenation) and trans alkenes (Birch reduction). *Reactions:* cis-addition (alk. KMnO_4) and trans-addition (bromine), Addition of HX (Markownikoff's and anti-Markownikoff's addition), Hydration, Ozonolysis, oxymecuration-demercuration, Hydroboration-oxidation.

Alkynes: (Upto 5 Carbons) *Preparation:* Acetylene from CaC_2 and conversion into higher alkynes; by dehalogenation of tetra halides and dehydrohalogenation of vicinal-dihalides.

Reactions: formation of metal acetylides, addition of bromine and alkaline KMnO_4 , ozonolysis and oxidation with hot alk. KMnO_4 .

PRACTICAL

Maxinun Marks: 50

INSTRUCTIONS FOR EXAMINERS AND CANDIDATES

The practical examination will be held in single session (morning/evening). Candidates are required to perform practicals from volumetric Analysis and TLC. Distribution of marks will be as under (Books may be consulted):

(1)	Volumetry analysis	=	13 marks (Initial write up 5 marks (Volumetry; equation:1, Indicator:1, end point:1 and general calculations:2) Performance and results: 8 marks (initial burette reading: 1, final reading:1, end point:1 calculations and result:5)
(2)	TLC	=	5 marks (Performance and result)
(3)	Detection of extra elements	=	5 marks (Performance and result)
(3)	Viva-Voce	=	7 marks
(4)	Note Books	=	5 marks
	Total	=	35 marks

SECTION A

INORGANIC CHEMISTRY - VOLUMETRIC ANALYSIS

1. Estimation of sodium carbonate and sodium hydrogen carbonate present in a mixture.
2. Estimation of oxalic acid by titrating it with KMnO_4 .

3. Estimation of water of crystallization in Mohr's salt by titrating with KMnO_4 .
4. Estimation of Fe (II) ions by titrating it with $\text{K}_2\text{Cr}_2\text{O}_7$ using internal indicator.
5. Estimation of Cu (II) ions iodometrically using $\text{Na}_2\text{S}_2\text{O}_3$.

**SECTION B:
ORGANIC CHEMISTRY**

Detection of extra elements (N, S, Cl, Br, I) in organic compounds (containing upto two extra elements)

1. Separation of mixtures by Chromatography: Measure the R_f value in each case (combination of two compounds to be given)
 - (a) Identify and separate the components of a given mixture of two amino acids (glycine, aspartic acid, glutamic acid, tyrosine or any other amino acid) by paper chromatography
 - (b) Identify and separate the sugars present in the given mixture by paper chromatography.

SUGGESTED READINGS (Latest Edition):

1. Lee, J.D. *Concise Inorganic Chemistry* ELBS, 1991.
2. Cotton, F.A., Wilkinson, G. & Gaus, P.L. *Basic Inorganic Chemistry*, 3rd ed., Wiley.
3. Douglas, B.E., McDaniel, D.H. & Alexander, J.J. *Concepts and Models in Inorganic Chemistry*, John Wiley & Sons.
4. Huheey, J.E., Keiter, E.A., Keiter, R.L. & Medhi, O.K. *Inorganic Chemistry: Principles of Structure and Reactivity*, Pearson Education India, 2006.
5. Graham Solomon, T.W., Fryhle, C.B. & Snyder, S.A. *Organic Chemistry*, John Wiley & Sons (2014).
6. McMurry, J.E. *Fundamentals of Organic Chemistry*, 7th Ed. Cengage Learning India Edition, 2013.
7. Sykes, P. *A Guidebook to Mechanism in Organic Chemistry*, Orient Longman, New Delhi (1988).
8. Eliel, E.L. *Stereochemistry of Carbon Compounds*, Tata McGraw Hill education, 2000.
9. Finar, I.L. *Organic Chemistry* (Vol. I & II), E.L.B.S.
10. Morrison, R.T. & Boyd, R.N. *Organic Chemistry*, Pearson, 2010.
11. Bahl, A. & Bahl, B.S. *Advanced Organic Chemistry*, S. Chand, 2010.
12. Svehla, G. *Vogel's Qualitative Inorganic Analysis*, Pearson Education, 2012.
13. Mendham, J. *Vogel's Quantitative Chemical Analysis*, Pearson, 2009.
14. Vogel, A.I., Tatchell, A.R., Furnis, B.S., Hannaford, A.J. & Smith, P.W.G., *Textbook of Practical Organic Chemistry*, Prentice-Hall, 5th edition, 1996.
15. Mann, F.G. & Saunders, B.C. *Practical Organic Chemistry* Orient-Longman, 1960.

B.SC. BIOTECHNOLOGY - I (SEMESTER I)**BT 1.3 A: BASIC BIOLOGY****6 Credits: 4H(L) + 4H(P)****Time: 3 hours**
Pass Marks: 35%**Maximum Marks: 100**
Theory: 50 marks
Practical: 20 marks
Internal Assessment: 30 marks

Objective: The objective of Basic biology course is to provide students with a broad perspective of the field of biology, to introduce them to major kind of organisms, their organisation and interactions so that a background can be established for further study in advanced biology courses.

Instruction for Paper Setter/Examiner

The question paper covering the entire course shall be divided into five parts: A, B, C, D & E.

Section-A

It will consist of 05 short answer questions from the entire syllabus. The candidates are required to attempt all the questions. Each question will carry 2 marks.

Section B, C, D & E

These will consist of 2 questions each from unit-I, II, III and IV of the syllabus and the candidates are required to attempt 1 question each from all the sections. Each question will carry 10 marks each. In numerical papers, there should be at least 1 numerical question each in any of the three sections of the paper.

Unit I

Cell as a basic unit of life: Cell theory and cell principle, broad classification of cell types- prokaryotic cells (PPLO's and bacteria) and eukaryotic cell (Plant and animal). Type of cells in organisms- cell shape, size and number.

Unit II

Diversity in Living organisms: Basis of scientific nomenclature, diversity in living organisms: various classification systems, Viruses.

Unit III

Basic Plant anatomy and Physiology: Structure of land plants: root, stem, leaves (various cells and tissues), nutrition and transport phenomenon in plants, plant reproduction and development, plant response to environment.

Unit IV

Basic Animal anatomy and physiology: Homeostasis and organisation of animal body, brief outline of various systems: circulation, respiration, nutrition and digestion, excretory, Immune response, endocrine, nervous, action and support by muscular system and reproduction system.

PRACTICALS (Marks 20)

1. To study the Permanent slides of various tissues: liver, spleen, pancreas, tongue, kidney, ovary and testis.
2. Preparation of stained mounts of anatomy of monocot and dicot root, stem & leaf.
4. Demonstration of opening & closing of stomata
5. Demonstration of guttation on leaf tips of grass and garden nasturtium.

SUGGESTED READING (Latest Edition):

1. G.Chopra, HN Srivastava, PS Dhami (2016). Pre-medical Zoology. Pardeep Publications.
2. J. and K. Dhami. A text book of Zoology. Pardeep Publications.
3. Guyton, A.C. & Hall, J.E. (2006). Textbook of Medical Physiology. XI Edition. Harcourt Asia PTE Ltd. /W.B. Saunders Company.
4. Tortora, G.J. & Grabowski, S. (2006). Principles of Anatomy & Physiology. XI Edition. John Wiley & sons, Inc.
5. Dickinson, W.C. (2000) Integrative Plant Anatomy. Harcourt Academic Press, USA.
6. Hopkins, W.G. and Huner, P.A. (2008). Introduction to Plant Physiology. John Wiley and Sons.

B.SC. BIOTECHNOLOGY - I (SEMESTER I)**BT 1.3 B: MEDICAL DIAGNOSTICS****6 Credits: 4H(L) + 4H(P)****Time: 3 hours**
Pass Marks: 35%**Maximum Marks: 100**
Theory: 50 marks
Practical: 20 marks
Internal Assessment: 30 marks

Objective: The goal of the course is to train students about etiology, patho-physiology, clinical manifestations, diagnostic measures.

Instruction for Paper Setter/Examiner

The question paper covering the entire course shall be divided into five parts: A, B, C, D & E.

Section-A

It will consist of 05 short answer questions from the entire syllabus. The candidates are required to attempt all the questions. Each question will carry 2 marks.

Section B, C, D & E

These will consist of 2 questions each from unit-I, II, III and IV of the syllabus and the candidates are required to attempt 1 question each from all the sections. Each question will carry 10 marks each. In numerical papers, there should be at least 1 numerical question each in any of the three sections of the paper.

Unit I

Biomedical basis of Disease causes and molecular or cellular progression of key diseases, Infectious (Bacterial-Tuberculosis, Anthrax, Typhoid; Viral- AIDS, Poliomyelitis, Hepatitis; Protozoan- Leishmaniasis, Malaria).

Unit II

Inherited/genetic diseases: Sickle Cell Anemia and Down Syndrome
Immunological diseases: Hypersensitivity, allergy, Rheumatoid arthritis, erythroblastosis fetalis

Unit III

Diagnostic Methods: Outline methods used in hospital histopathology, biochemistry, haematology and microbiology laboratories, and apply some of these in the laboratory.

Unit IV

Introduction to- Electrocardiography (ECG), Echocardiography, X-ray, Computed Tomography (CT) scan, Magnetic resonance imaging (MRI) scan and Ultrasound.

PRACTICALS (Marks: 20)

(Note- Wherever wet lab experiments are not possible the principles and concepts can be demonstrated through any other material or medium including videos/virtual labs etc.)

1. Determination of bleeding and blood coagulation time.
2. Determination of Erythrocytic Sedimentation Rate.
3. Blood platelet count by hemocytometer.
4. Estimation of Haemoglobin content of blood using Sahli's haemoglobinometer.
5. Testing of blood glucose using glucometer /colorimeter

SUGGESTED READINGS (Latest Edition):

1. Daniel W.W. (2009) Biostatistics-A Foundation for Analysis in the Human Health, 9th Edition, John Wiley & Sons.
2. Robbins S.L. (1974) Pathological basis of Disease. W B Saunders Company
3. Macleod J.: Davidson's Principles & Practice of Medicine: A textbook for students and doctors' 14th Edition. Churchill Livingstone.
4. Guyton A.C. and Hall J.E. (2006) Textbook of Medical Physiology 11th edn. Saunders
5. Hage D S and Carr J D, (2010) Analytical Chemistry & Quantitative Analysis, Prentice Hall
6. Berg J.M., Tymoczko J.L., Stryer L. Biochemistry, 5th edn. W.H. Freeman & Co.
7. Brant W.E. and Helms C.A. (2007) Fundamentals of Diagnostic Radiology, 3rd edn. Lippincott Williams &Wilkins.

B.SC. BIOTECHNOLOGY - I (SEMESTER I)
BT 1.4 A: PUNJABI COMPULSORY (ਲਾਜ਼ਮੀ ਪੰਜਾਬੀ)
4 Credits: 3H(L)+2H(P)

ਕੁੱਲ ਅੰਕ:100
 ਲਿਖਤੀ ਪਰੀਖਿਆ:50 ਅੰਕ
 ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ: 30 ਅੰਕ
 ਪ੍ਰਯੋਗੀ ਪ੍ਰੀਖਿਆ:20 ਅੰਕ
 ਲਿਖਤੀ ਪ੍ਰੀਖਿਆ ਦਾ ਸਮਾਂ: 3 ਘੰਟੇ

ਵਿਸ਼ੇ ਵਿੱਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਲੋੜੀਂਦੇ ਅੰਕ:35
 ਲਿਖਤੀ ਪਰੀਖਿਆ ਵਿੱਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਲੋੜੀਂਦੇ ਅੰਕ: 17
 ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿੱਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਲੋੜੀਂਦੇ ਅੰਕ: 11
 ਪ੍ਰਯੋਗੀ ਪ੍ਰੀਖਿਆ ਵਿੱਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਲੋੜੀਂਦੇ ਅੰਕ: 07

ਸਿਲੇਬਸ ਅਤੇ ਪਾਠ ਪੁਸਤਕਾਂ

ਭਾਗ-ੳ :- ਕਥਾ-ਵਾਰਤਾ, ਸੰਪਾਦਕ- ਡਾ. ਗੁਰਮੁਖ ਸਿੰਘ, ਡਾ. ਮਨਜੀਤ ਕੌਰ.

ਭਾਗ-ਅ :- ਪਿੰਜਰ- ਲੇਖਿਕਾ ਅੰਮ੍ਰਿਤਾ ਪ੍ਰੀਤਮ

ਭਾਗ- ਈ :- ਵਿਹਾਰਕ ਵਿਆਕਰਨ

(ਈ.1) ਪੰਜਾਬੀ ਧੁਨੀਆਂ: ਖੰਡੀ ਧੁਨੀਆਂ ਦੀ ਪਰਿਭਾਸ਼ਾ, ਸਵਰਾਂ ਅਤੇ ਵਿਅੰਜਨਾਂ ਦੀ ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਉਚਾਰਨ ਅੰਗਾਂ, ਉਚਾਰਨ ਸਥਾਨ ਅਤੇ ਉਚਾਰਨ ਵਿਧੀ ਅਨੁਸਾਰ ਵਰਗੀਕਰਣ। ਇਹਨਾਂ ਦੀ ਸ਼ਬਦਾਂ ਵਿਚ ਵਰਤੋਂ ਅਤੇ ਧੁਨੀਆਤਮਕ ਵਿਸ਼ੇਸ਼ਤਾਵਾਂ।

(ਈ.2) ਸ਼ਬਦ ਬਣਤਰ ਅਤੇ ਸ਼ਬਦ ਰਚਨਾ : ਪਰਿਭਾਸ਼ਾ, ਮੁੱਢਲੇ ਸੰਕਲਪ, ਮੂਲ ਰੂਪ, ਅਗੇਤਰ, ਪਛੇਤਰ, ਵਿਉਂਤਪਤ ਰੂਪ ਅਤੇ ਰੂਪਾਂਤਰੀ ਰੂਪ।

(ਈ.3) ਸਥਾਨਕ ਕਾਲਜ ਦੇ ਪੰਜਾਬੀ ਵਿਭਾਗ ਵੱਲੋਂ ਪ੍ਰਕਾਸ਼ਿਤ ਕੀਤੇ ਗਏ ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਕੋਸ਼ ਦੇ ਆਪਣੀ ਆਪਣੀ ਫੈਕਲਟੀ ਨਾਲ ਸਬੰਧਤ ਭਾਗ ਦੇ ਪਹਿਲੇ 100 ਸ਼ਬਦਾਂ ਦਾ ਅੰਗਰੇਜ਼ੀ ਤੋਂ ਪੰਜਾਬੀ ਵਿਚ ਅਨੁਵਾਦ।

(ਈ.4) ਰਿਪੋਰਟ : ਪਰਿਭਾਸ਼ਾ, ਕਿਸਮਾਂ ਅਤੇ ਲਿਖਣ ਦੀ ਵਿਧੀ

ਭਾਗ-ਸ : ਭਾਗ-ੳ, ਅ, ਅਤੇ ਈ ਵਾਲੇ ਭਾਗਾਂ ਵਿੱਚੋਂ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਪ੍ਰਸ਼ਨ।

ਅੰਕ ਵੰਡ ਅਤੇ ਪੇਪਰ ਸੈਟਰ ਲਈ ਹਦਾਇਤਾਂ

1. ਸਿਲੇਬਸ ਦੇ ਸਾਰੇ ਭਾਗਾਂ ਵਿੱਚੋਂ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ।

2. ਪੇਪਰ ਨੂੰ ਚਾਰ ਭਾਗਾਂ ਲ਼, ਅ, ਈ ਅਤੇ ਸ ਵਿੱਚ ਵੰਡਿਆ ਜਾਵੇਗਾ।

3. ਭਾਗ ਲ਼ ਵਿੱਚੋਂ ਕਿਸੇ ਕਹਾਣੀ ਦੇ ਵਿਸ਼ਾ ਵਸਤੂ/ ਸਮੱਸਿਆ/ ਪਾਤਰਾਂ ਦੇ ਆਪਸੀ ਸਬੰਧ ਅਤੇ ਕਹਾਣੀ ਵਿਚ ਰੋਲ ਸਬੰਧੀ ਪ੍ਰਸ਼ਨ ਪੁੱਛਿਆ ਜਾਵੇਗਾ।
 (ਤਿੰਨ ਵਿੱਚੋਂ ਇਕ) ਅੰਕ=07

4. ਭਾਗ ਅ ਵਿੱਚੋਂ ਨਾਵਲ ਦੇ ਵਿਸ਼ਾ-ਵਸਤੂ/ ਸਮੱਸਿਆ ਅਤੇ ਪਾਤਰ ਚਿਤਰਨ ਸੰਬੰਧੀ ਪ੍ਰਸ਼ਨ ਪੁੱਛਿਆ ਜਾਵੇਗਾ।

(ਤਿੰਨ ਵਿੱਚੋਂ ਕੋਈ ਇਕ) ਅੰਕ = 07

5. ਵਿਆਕਰਨ ਵਾਲੇ ਭਾਗ ਨਾਲ ਸਬੰਧਤ ਵਰਣਾਤਮਕ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ
 ਅੰਕ=06

(ਤਿੰਨ ਵਿੱਚੋਂ ਕੋਈ ਇਕ)

6. ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਵਿਸ਼ਾ ਕੋਸ਼ ਦੇ ਆਪਣੀ- ਆਪਣੀ ਫੈਕਲਟੀ ਨਾਲ ਸਬੰਧਤ ਭਾਗ ਦੇ ਪਹਿਲੇ 100 ਤਕਨੀਕੀ ਸ਼ਬਦਾਂ ਦੇ ਅੰਗਰੇਜ਼ੀ ਤੋਂ ਪੰਜਾਬੀ ਵਿਚ ਅਨੁਵਾਦ ਕਰਨ ਸਬੰਧੀ।

(ਪੱਚੀ ਵਿੱਚੋਂ ਕੋਈ ਵੀਹ) ਅੰਕ=10

7. ਰਿਪੋਰਟ ਦੀ ਪਰਿਭਾਸ਼ਾ, ਕਿਸਮਾਂ ਅਤੇ ਲਿਖਣ ਦੀਆਂ ਵਿਧੀਆਂ ਸਬੰਧੀ।

(ਦੋ ਵਿੱਚੋਂ ਇਕ) ਅੰਕ=5

8. ਭਾਗ ਸ ਦੇ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ 15 ਪ੍ਰਸ਼ਨ ਤਿੰਨਾਂ ਭਾਗਾਂ ਵਿਚੋਂ ਬਰਾਬਰ (ਪੰਜ-ਪੰਜ) ਪੁੱਛੇ ਜਾਣਗੇ। ਵਿਦਿਆਰਥੀ ਨੇ ਸਾਰੇ ਪ੍ਰਸ਼ਨਾਂ ਦੇ ਸੰਖੇਪ ਵਿਚ ਉੱਤਰ ਦੇਣੇ ਹੋਣਗੇ ਅਤੇ ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 2 ਅੰਕ ਹੋਣਗੇ। (ਨੋਟ:ਪੇਪਰ ਵਿਚ ਭਾਗ ਏ ਦੇ ਏ.3 ਅਤੇ ਏ.4 ਵਿਚੋਂ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਪ੍ਰਸ਼ਨ ਨਹੀਂ ਪੁੱਛੇ ਜਾਣਗੇ।) 15X1= 15 ਅੰਕ

ਇੰਟਰਨਲ ਅਸੈਸਮੈਂਟ

ਕੁੱਲ ਅੰਕ= 30

1. ਕਲਾਸ ਹਾਜ਼ਰੀ/ ਘਰੇਲੂ ਇਮਤਿਹਾਨ/ ਅਸਾਈਨਮੈਂਟ
- 2.1 ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪਿੰਜਰ ਨਾਵਲ ਦੀ ਫਿਲਮ ਦਿਖਾਈ ਜਾਵੇਗੀ ਅਤੇ ਉਹ ਵੱਖ ਵੱਖ ਪੱਖਾਂ ਤੋਂ ਉਸ ਦੇ ਫਿਲਮਾਂਕਣ ਨਾਲ ਸਬੰਧਤ ਰਿਪੋਰਟ ਤਿਆਰ ਕਰਨਗੇ।
ਜਾਂ
- 2.2 ਵਿਦਿਆਰਥੀ ਕਾਲਜ ਵਿਚ ਹੋਏ ਸਮਾਗਮਾਂ ਨਾਲ ਸਬੰਧਤ ਚਿੱਤਰਾਂ ਸਮੇਤ ਪ੍ਰੈਸ ਨੋਟ ਦੀ ਫਾਇਲ ਤਿਆਰ ਕਰਨਗੇ ਜਾਂ ਉਹਨਾਂ ਨਾਲ ਸਬੰਧਤ ਪੰਜਾਬੀ ਵਿੱਚ ਪੀ. ਪੀ. ਟੀ. ਪ੍ਰੈਜਨਟੇਸ਼ਨ ਦੇਣਗੇ।
ਉਪਰੋਕਤ ਕਾਰਜ ਲਈ ਸਮਾਗਮਾਂ ਦੀ ਗਿਣਤੀ ਕਲਾਸ ਨਾਲ ਸਬੰਧਤ ਅਧਿਆਪਕ ਦੁਆਰਾ ਨਿਰਧਾਰਤ ਕੀਤੀ ਜਾਵੇਗੀ।

ਪ੍ਰਯੋਗੀ ਪ੍ਰੀਖਿਆ (ਅੰਦਰੂਨੀ ਅਤੇ ਬਾਹਰੀ ਵਿਸ਼ੇਸ਼ਗ ਦੁਆਰਾ ਮੁਲਾਂਕਣ)

4*5= 20 ਅੰਕ

1. ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਬੋਲਣ ਦੀ ਮੁਹਾਰਤ
2. ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਲਿਖਣ ਦੀ ਮੁਹਾਰਤ
3. ਪੰਜਾਬੀ ਵਿਚ ਸਿਰਜਣਾਤਮਕ ਸਾਹਿਤ ਲਿਖਣ ਦਾ ਅਭਿਆਸ
4. ਸਬੰਧਿਤ ਕੋਰਸ ਦੇ ਵਿਸ਼ਿਆਂ ਸਬੰਧੀ ਜਾਣਕਾਰੀ ਦਾ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਵਿਚ ਲੇਖਣ

ਸਹਾਇਕ ਪਾਠ- ਸਮੱਗਰੀ

1. ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ, **ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨ**, (ਭਾਗ ਪਹਿਲਾ), ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ, ਜਲੰਧਰ, 2009. (ਪੰਨਾ 33 ਤੋਂ 45 ਤੱਕ, 95 ਤੋਂ 113 ਤੱਕ)।
2. ਡਾ. ਹਰਜਿੰਦਰ ਸਿੰਘ ਵਾਲੀਆ ਅਤੇ ਪਾਰੁਲ ਰਾਏਜ਼ਾਦਾ, **ਪੱਤਰਕਾਰੀ ਅਤੇ ਜਨ ਸੰਚਾਰ**, ਮਦਾਨ ਪਬਲਿਸ਼ਿੰਗ ਹਾਊਸ ਪਟਿਆਲਾ, 2014. (ਪੰਨਾ 89 ਤੋਂ 95, 103 ਤੋਂ 107, 114 ਤੋਂ 118 ਤੱਕ)।
3. ਹਰਕੀਰਤ ਸਿੰਘ, **ਭਾਸ਼ਾ ਵਿਗਿਆਨ ਅਤੇ ਪੰਜਾਬੀ ਭਾਸ਼ਾ**, ਬਾਹਰੀ ਪਬਲੀਕੇਸ਼ਨ, ਦਿੱਲੀ, 1971.
4. ਬਲਦੇਵ ਸਿੰਘ ਚੀਮਾ, **ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਵਿਗਿਆਨ ਅਤੇ ਵਿਆਕਰਨ** (ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਦਾ ਵਿਸ਼ਾ ਕੋਸ਼) ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ 2000.
5. ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ, **ਪੰਜਾਬੀ ਵਿਆਕਰਨ: ਸਿਧਾਂਤ ਤੇ ਵਿਹਾਰ**, ਚੇਤਨਾ ਪ੍ਰਕਾਸ਼ਨ, ਲੁਧਿਆਣਾ, 2008.
6. ਪ੍ਰੇਮ ਪ੍ਰਕਾਸ਼ ਸਿੰਘ, **ਸਿਧਾਂਤਕ ਭਾਸ਼ਾ ਵਿਗਿਆਨ**, ਮਦਾਨ ਪਬਲਿਸ਼ਰਜ਼, ਪਟਿਆਲਾ, 2002.
7. **ਜਨ ਸਾਹਿਤ**, ਅੰਮ੍ਰਿਤਾ ਪ੍ਰੀਤਮ, ਵਿਸ਼ੇਸ਼ ਅੰਕ, ਅਕਤੂਬਰ-ਨਵੰਬਰ 2006, ਭਾਸ਼ਾ ਵਿਭਾਗ, ਪੰਜਾਬ.
8. ਪ੍ਰੋ. ਬ੍ਰਹਮਜਗਦੀਸ਼ ਸਿੰਘ, ਪ੍ਰੋ. ਸ਼ੈਰੀ ਸਿੰਘ, **ਅੰਮ੍ਰਿਤਾ ਪ੍ਰੀਤਮ ਜੀਵਨ ਤੇ ਰਚਨਾ**, ਵਾਰਿਸ ਸ਼ਾਹ ਫਾਊਂਡੇਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ 2008

ਨੋਟ:1. ਤਿੰਨ ਸਾਲਾ ਡਿਗਰੀ ਕੋਰਸਾਂ ਵਿਚ ਤਿੰਨ ਸਾਲ ਲਾਜ਼ਮੀ ਪੰਜਾਬੀ ਪੜ੍ਹਨ ਵਾਲੇ ਅਤੇ ਕੇਵਲ ਇਕ ਸਾਲ ਲਾਜ਼ਮੀ ਪੰਜਾਬੀ ਪੜ੍ਹਨ ਵਾਲੇ ਸਾਰੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਭਾਗ ਪਹਿਲਾ, ਸਮੈਸਟਰ ਪਹਿਲਾ ਦਾ ਲਾਜ਼ਮੀ ਪੰਜਾਬੀ ਦਾ ਸਿਲੇਬਸ ਉਪਰੋਕਤ ਹੋਵੇਗਾ।

2. Only those students who have not studied Punjabi up to matriculation can option for

Elementary Punjabi. Other students will study compulsory Punjabi.

B.SC. BIOTECHNOLOGY - I (SEMESTER I)
BT 1.4 B: ELEMENTARY PUNJABI (ਮੁੱਢਲਾ ਗਿਆਨ)
4 Credits: 3H(L)+2H(P)

ਕੁੱਲ ਅੰਕ 100

ਲਿਖਤੀ ਪਰੀਖਿਆ : 50 ਅੰਕ

ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ : 30 ਅੰਕ

ਪ੍ਰਯੋਗੀ ਪ੍ਰੀਖਿਆ : 20 ਅੰਕ

ਲਿਖਤੀ ਪ੍ਰੀਖਿਆ ਦਾ ਸਮਾਂ: 3 ਘੰਟੇ

ਵਿਸ਼ੇ ਵਿੱਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਲੋੜੀਂਦੇ ਅੰਕ : 35

ਲਿਖਤੀ ਪਰੀਖਿਆ ਵਿੱਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਲੋੜੀਂਦੇ ਅੰਕ :17

ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿੱਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਲੋੜੀਂਦੇ ਅੰਕ :11

ਪ੍ਰਯੋਗੀ ਪ੍ਰੀਖਿਆ ਵਿੱਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਲੋੜੀਂਦੇ ਅੰਕ :07

ਭਾਗ ਓ

ਭਾਗ (ਓ.1) ਗਰਮੁਖੀ ਵਰਣਮਾਲਾ ਤੇ ਲੇਖਣ ਪ੍ਰਬੰਧ

ਅੱਖਰ ਸਿੱਖਿਆ: ਤਰਤੀਬਵਾਰ ਤੇ ਭੁਲਵੇਂ ਅੱਖਰ।

(ਓ.2) ਅੱਖਰ ਬਣਤਰ : ਅੱਖਰ ਰੂਪ ਅਤੇ ਲੇਖਣ ਦੇ ਨਿਯਮ।

05 ਅੰਕ

ਭਾਗ ਅ

ਗੁਰਮੁਖੀ ਅੱਖਰ ਤੇ ਪੰਜਾਬੀ ਧੁਨੀਆਂ ਦਾ ਪ੍ਰਬੰਧ:

(ਓ) ਸਵਰ ਤੇ ਵਿਅੰਜਨ : ਵਰਗੀਕਰਨ ਤੇ ਸਿਧਾਂਤ ਤੇ ਉਚਾਰਨ

(ਅ) ਸਵਰ ਸੂਚਕ ਅੱਖਰਾਂ ਤੇ ਧੁਨੀਆਂ ਦੀ ਪਛਾਣ ਦੀ ਵਰਤੋਂ ।

(ੲ) ਵਿਅੰਜਨ ਸੂਚਕ ਅੱਖਰਾਂ ਅਤੇ ਧੁਨੀਆਂ ਦੀ ਪਛਾਣ ਤੇ ਵਰਤੋਂ।

(ਸ) ਲਗਾਂ ਮਾਤਰਾ ਦੀ ਪਛਾਣ ਤੇ ਵਰਤੋਂ।

(ਹ) ਲਗਾਖਰਾਂ ਦੀ ਪਛਾਣ ।

10 ਅੰਕ

ਭਾਗ -ੲ

ਲਿਪੀ ਦੇ ਅੱਖਰਾਂ ਦੀ ਵਰਤੋਂ ਦੇ ਨਿਯਮ

(ਓ) ਸਵਰ ਸੂਚਕ ਅੱਖਰਾਂ ਦੀ ਪਛਾਣ ਤੇ ਵਰਤੋਂ।

(ਅ) ਮਾਤਰਾ ਅਤੇ ਸਵਰ ਵਾਹਕਾਂ ਦੀ ਸਾਂਝੀ ਵਰਤੋਂ।

(ੲ) ਮਾਤਰਾ ਦੀ ਵਿਅੰਜਨ ਸੂਚਕਾਂ ਨਾਲ ਵਰਤੋਂ।

(ਸ) ਸਵਰ ਵਾਹਕਾਂ ਦੀ ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਸਵਰ ਧੁਨੀਆਂ ਦਾ ਸਵਰ ਵਾਹਕਾਂ ਅਨੁਸਾਰ ਵਰਗੀਕਰਨ।

(ਹ) ਲਗਾਖਰ - ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਇਹਨਾਂ ਦੀ ਸਵਰ ਧੁਨੀਆਂ ਨਾਲ ਵਰਤੋਂ।

(ਕ) ਪੈਰ ਵਿਚ ਪੈਣ ਵਾਲੇ ਵਰਣਾਂ ਦੀ ਪਛਾਣ ਤੇ ਵਰਤੋਂ।

10 ਅੰਕ

ਭਾਗ ਸ

ਪੰਜਾਬੀ ਸ਼ਬਦਾਵਲੀ ਨਾਲ ਜਾਣ ਪਛਾਣ

(ਓ) ਗਿਣਤੀ (1 ਤੋਂ 50 ਤੱਕ)

(ਅ) ਹਫ਼ਤੇ ਦੇ ਦਿਨ

(ੲ) ਅੰਗਰੇਜ਼ੀ ਮਹੀਨਿਆਂ ਦੇ ਨਾਂ

(ਸ) ਰੰਗਾਂ ਦੇ ਨਾਂ

(ਹ) ਫਲਾਂ-ਸਬਜ਼ੀਆਂ ਦੇ ਨਾਂ

(ਕ) ਪਸ਼ੂ- ਪੰਛੀਆਂ ਦੇ ਨਾਂ

(ਖ) ਨਾਨਕੇ ਅਤੇ ਦਾਦਕੇ ਘਰ ਦੇ ਰਿਸ਼ਤਿਆਂ ਦੇ ਨਾਂ

(ਗ) ਆਵਾਜਾਈ ਦੇ ਸਾਧਨਾਂ ਦੇ ਨਾਂ

(ਘ) ਘਰੇਲੂ ਵਸਤਾਂ ਦੀ ਸ਼ਬਦਾਵਲੀ

10 ਅੰਕ

ਭਾਗ-ਹ ਸਾਰੇ ਸਿਲੇਬਸ ਤੇ ਅਧਾਰਿਤ 15 ਆਬਜੈਕਟਿਵ ਟਾਈਪ ਪ੍ਰਸ਼ਨ।

15*1=15 ਅੰਕ

ਅੰਕ ਵੰਡ ਅਤੇ ਪੇਪਰ ਸੈਟਰ ਲਈ ਹਦਾਇਤਾਂ

1. ਵਿਦਿਆਰਥੀ ਪਹਿਲੀ ਵਾਰ ਗੁਰਮੁਖੀ ਸਿਖ ਰਹੇ ਹਨ। ਹੋ ਸਕਦਾ ਹੈ ਵਿਦਿਆਰਥੀ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਤੋਂ ਅਨਜਾਣ ਹੋਣ। ਸੋ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਪੱਧਰ ਵਿਦਿਆਰਥੀਆਂ ਦੀ ਭਾਸ਼ਾ ਸਿੱਖਣ ਦੀ ਸੀਮਾ ਨੂੰ ਧਿਆਨ ਵਿਚ ਰੱਖ ਕੇ ਨਿਸ਼ਚਿਤ ਕੀਤਾ ਜਾਵੇ।
2. ਸਰਲ ਅਤੇ ਸਪੱਸ਼ਟ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣ।
3. ਵਰਣਾਤਮਕ ਪ੍ਰਸ਼ਨ ਨਾ ਪੁੱਛੇ ਜਾਣ।
4. ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਲਿਪੀ ਦਾ ਬੋਧ ਕਰਵਾਉਣ ਲਈ ਧੁਨੀਆਂ, ਲਿਪੀ ਚਿੰਨ੍ਹਾਂ ਦੀ ਪਛਾਣ ਅਤੇ ਵਰਤੋਂ ਸਬੰਧੀ ਸੰਖੇਪ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣ।
5. ਲੋੜ ਅਨੁਸਾਰ ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਛੋਟ ਜਾਂ ਚੋਣ ਦੇਣੀ ਲਾਜ਼ਮੀ ਹੈ।
6. ਪੰਜਾਬੀ ਸ਼ਬਦਾਵਲੀ ਦੇ ਸਾਰੇ ਭਾਗਾਂ ਵਿੱਚੋਂ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣ। ਲੋੜ ਅਨੁਸਾਰ ਛੋਟ ਜਾਂ ਚੋਣ ਦੇਣੀ ਲਾਜ਼ਮੀ ਹੈ।

ਇੰਟਰਨਲ ਅਸੈਸਮੈਂਟ

ਕੁੱਲ 30 ਅੰਕ

1. ਕਲਾਸ ਹਾਜ਼ਰੀ/ਘਰੇਲੂ ਇਮਤਿਹਾਨ/ਅਸਾਈਨਮੈਂਟ
2. ਅਧਿਆਪਕ ਵੱਲੋਂ ਵਿਦਿਆਰਥੀ ਦੇ ਪੱਧਰ ਅਨੁਸਾਰ ਪੰਜਾਬੀ ਵਿਚ ਦਿੱਤਾ ਗਿਆ ਕੋਈ ਵੀ ਕਾਰਜ

ਪ੍ਰਯੋਗੀ ਪ੍ਰੀਖਿਆ (ਅੰਦਰੂਨੀ ਅਤੇ ਬਾਹਰੀ ਵਿਸ਼ੇਸ਼ਗ ਦੁਆਰਾ ਮੁਲਾਂਕਣ)

1. ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਬੋਲਣ ਦੀ ਮਹਾਰਤ
2. ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਲਿਖਣ ਦੀ ਮਹਾਰਤ
3. ਪੰਜਾਬੀ ਵਿਚ ਸਿਰਜਣਾਤਮਕ ਸਾਹਿਤ ਲਿਖਣ ਦਾ ਅਭਿਆਸ
4. ਸਬੰਧਿਤ ਕੋਰਸ ਦੇ ਵਿਸ਼ਿਆਂ ਸਬੰਧੀ ਜਾਣਕਾਰੀ ਦਾ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਵਿਚ ਲੇਖਣ

4*5= 20 ਅੰਕ

ਸਹਾਇਕ ਪਾਠ ਸਮੱਗਰੀ

1. ਸਤਿਨਾਮ ਸਿੰਘ ਸੰਧੂ, **ਆਓ ਪੰਜਾਬੀ ਸਿਖੀਏ**, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ, 2009. (ਹਿੰਦੀ ਤੋਂ ਪੰਜਾਬੀ ਸਿੱਖਣ ਲਈ)।
2. ਸਤਿਨਾਮ ਸਿੰਘ ਸੰਧੂ, **ਗੁਰਮੁਖੀ ਸਿੱਖੋ**, ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ, 2011. (ਅੰਗਰੇਜ਼ੀ ਤੋਂ ਪੰਜਾਬੀ ਸਿੱਖਣ ਲਈ)।
3. ਸੀਤਾ ਰਾਮ ਬਾਹਰੀ, **ਪੰਜਾਬੀ ਸਿਖੀਏ**, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ, 2002. (ਹਿੰਦੀ)।
4. ਰਾਜਿੰਦਰ ਸਿੰਘ, **ਪੰਜਾਬੀ ਗਿਆਨ ਸੀ.ਡੀ.** (ਕੰਪਿਊਟਰ ਐਪਲੀਕੇਸ਼ਨ ਟੂ-ਲਰਨ ਐਂਡ ਟੀਚ ਪੰਜਾਬੀ), ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ, 2011.
5. Hardev Bahri, **Teach Yourself Punjabi**, Publication Bureau, Punjabi University, Patiala, 2011.
6. Henry A. Gleason and Harjeet Singh Gill, **A Start in Punjabi**, Punjabi University, Patiala, 1997.
7. Ujjal Singh Bahri and Paramjit Singh Walia, **Introductory Punjabi**, Punjabi University, Patiala. 2011.

B.SC. BIOTECHNOLOGY - I (SEMESTER I)
BT 1.5: ENGLISH COMMUNICATION SKILLS

(COMMON FOR B.SC. (MEDICAL, NON-MEDICAL, BIO-TECH., AGRICULTURE, CSM), BCA PART-I)
4 Credits: 3H(L)+2H(P)

Time: 3 hours.
Pass Marks: 35%

Maximum Marks: 100
Theory: 50 marks
Internal Assessment: 30 marks
Practical Marks: 20

Section-A

Text Prescribed: *Wings of Fire* by APJ Abdul Kalam, Universities Press, 1999

Testing:

Q1. (a) One essay-type question with an internal alternative on summary, central idea, key incident and theme in about 250 words. 10 marks

(b) Five short answer type questions to be attempted out of the given eight from the prescribed text in about 30 words each. 5 X 2= 10 marks

Section- B

Q.2. Writing Skills:

(a) Report Writing: Analytical Report and Action Report

Testing: One report to be attempted out of the given two. 7 marks

(b) Developing a story from the given hints. 5 marks

Q.3. Grammar and Vocabulary

(a) Grammar

Prescribed Text: *Oxford Practice Grammar* by John Eastwood, Oxford University Press, 2004

1. Ex. 1-20 6 marks

Testing: Attempt any 6 sentences out of the given 8

2. Ex.21-39 6 marks

Testing: Attempt any 6 sentences out of the given 8

(b) Vocabulary

Prescribed Text: *The Students' Companion* by Wilfred D. Best, Harper Collins Publishers, 2010

1. Antonyms: pages 128 to 130 3 marks

Testing: Attempt any 6 Antonyms out of the given 8

2. Synonyms: pages 132 to 134 3 marks

Testing: Attempt any 6 Synonyms out of the given 8

PRACTICAL 20 marks

Topics to be covered

1. Resume Writing 5 marks

2. Dialogue delivery on the given situations 5 marks

3. Facing an interview 5 marks

4. Reading newspaper 5 marks

Book Recommended for Grammar and Composition:

The Written Word by Vandana R. Singh, Oxford University Press, 2006.

B.SC. BIOTECHNOLOGY - I (SEMESTER II)**BT 2.1: CELL BIOLOGY****6 Credits: 4H(L) + 4H(P)****Time: 3 hours**
Pass Marks: 35%**Maximum Marks: 100**
Theory: 50 marks
Practical: 20 marks
Internal Assessment: 30 marks

Objective: This course is designed for students to understand the structure and basic components of prokaryotic and eukaryotic cells and their sub cellular processes. They will apply their knowledge to study impact of environment or physiological changes on alteration or loose of cell function.

Instruction for Paper Setter/Examiner

The question paper covering the entire course shall be divided into five parts: A, B, C, D & E.

Section-A

It will consist of 05 short answer questions from the entire syllabus. The candidates are required to attempt all the questions. Each question will carry 2 marks.

Section B, C, D & E

These will consist of 2 questions each from unit-I, II, III and IV of the syllabus and the candidates are required to attempt 1 question each from all the sections. Each question will carry 10 marks each. In numerical papers, there should be at least 1 numerical question each in any of the three sections of the paper.

Unit I

Basics of biochemical composition of the cell: Water- Physiochemical properties of water, dissociation and association constants. Proteins, Lipids, Carbohydrates, nuclic acids, vitamins, harmones and metabolic pool.

Ultra structure and function of cell organelles: structure and function of cell membrane, nucleus, cytosol, endoplasmic reticulum, golgi complex, ribosomes, mitochondaria, chloroplast, lysosomes, peroxysomes, cytoskeleton (structure and function of microtubutles, microfilaments and intermediate filaments).

Unit II

Cell division and cell cycle: Fission, amitosis, mitosis, meiosis and various stages of cell cycle; Levels of organisation (cell, tissue, organ and organ system).

Cell differentiation in multicellular organisms- totipotent, pleuripotent and multipotent.

Unit III

Cellular transport: Passive active and bulk transport, permeases, sodium, potassium, calcium, ATPase pumps, endocytosis, exocytosis, co-transport, symport, antiport, transport in prokaryotic cells.

Cell locomotion: structure of cilia, flagella and their movements, amoeboid movement, cytoplasmic streaming in plant cells.

Unit IV

Cell senescence and cell death: apoptosis and necrosis

Cell Signaling: Introduction to cell signaling, receptors involved in signal transduction, general pathways, extracellular matrix and cell interactions.

PRACTICALS (Marks 20)

1. Study the effect of temperature and organic solvents on semi permeable membrane.
2. Study of plasmolysis and de-plasmolysis.
3. Study of structure of any Prokaryotic and Eukaryotic cell.
4. Microtomy: Fixation, block making, section cutting, double staining of animal tissues.
5. Cell division in onion root tip/ insect gonads.
6. To study the electron micrograph of various cell organelles: nucleus, plasma membrane, Endoplasmic reticulum, Golgi complex, cilia/ flagella, centrioles, mitochondria

SUGGESTED READING (Latest Edition)

1. Powaar C.P. (2003) Cell Biology (Indian ed.)
2. Nath R. (2009). An introduction to cell Biology. Kalyani Publications, Jalandhar.
3. Karp, G. 2010. Cell and Molecular Biology: Concepts and Experiments. 6th Edition. John Wiley & Sons. Inc.
4. De Robertis, E.D.P. and De Robertis, E.M.F. 2006. Cell and Molecular Biology. 8th edition. Lippincott Williams and Wilkins, Philadelphia.
5. Cooper, G.M. and Hausman, R.E. 2009. The Cell: A Molecular Approach. 5th edition. ASM Press & Sunderland, Washington, D.C.; Sinauer Associates, MA.
6. Becker, W.M., Kleinsmith, L.J., Hardin. J. and Bertoni, G. P. 2009.

B.SC. BIOTECHNOLOGY - I (SEMESTER II)**BT 2.2: CHEMISTRY II****6 Credits: 4H(L) + 4H(P)****Time: 3 hours**
Pass Marks: 35%**Maximum Marks: 150****Theory: 70 marks****Practical: 35 marks****Internal Assessment: 30T+15P****marks****Instruction for Paper Setter/Examiner**

The question paper covering the entire course shall be divided into five parts: A, B, C, D & E.

Section-A

It will consist of 10 short answer questions from the entire syllabus. The candidates are required to attempt all the questions. Each question will carry 3 marks.

Section B, C, D & E

These will consist of 2 questions each from unit-I, II, III and IV of the syllabus and the candidates are required to attempt 1 question each from all the sections. Each question will carry 10 marks each. In numerical papers, there should be at least 1 numerical question each in any of the three sections of the paper.

PHYSICAL CHEMISTRY-1**UNIT-I**

Chemical Energetics Review of thermodynamics and the Laws of Thermodynamics. Important principles and definitions of thermochemistry. Concept of standard state and standard enthalpies of formations, integral and differential enthalpies of solution and dilution. Calculation of bond energy, bond dissociation energy and resonance energy from thermochemical data. Variation of enthalpy of a reaction with temperature – Kirchhoff's equation.

Statement of Third Law of thermodynamics and calculation of absolute entropies of substances.

UNIT-II**CHEMICAL EQUILIBRIUM:**

Free energy change in a chemical reaction. Thermodynamic derivation of the law of chemical equilibrium. Distinction between G and G° , Le Chatelier's principle. Relationships between K_p , K_c and K_x for reactions involving ideal gases.

Ionic Equilibria:

Strong, moderate and weak electrolytes, degree of ionization, factors affecting degree of ionization, ionization constant and ionic product of water. Ionization of weak acids and bases, pH scale, common ion effect. Salt hydrolysis-calculation of hydrolysis constant, degree of hydrolysis and pH for different salts. Buffer solutions. Solubility and solubility product of sparingly soluble salts – applications of solubility product principle.

ORGANIC CHEMISTRY-2

UNIT-III

Functional group approach for the following reactions (preparations & reactions) to be studied in context to their structure.

Aromatic hydrocarbons

Preparation (Case benzene): from phenol, by decarboxylation, from acetylene, from benzene sulphonic acid.

Reactions: (Case benzene): Electrophilic substitution: nitration, halogenation and sulphonation. Friedel-Craft's reaction (alkylation and acylation) (upto 4 carbons on benzene). Side chain oxidation of alkyl benzenes (upto 4 carbons on benzene).

Alkyl and Aryl Halides

Alkyl Halides (Upto 5 Carbons) Types of Nucleophilic Substitution (SN_1 , SN_2 and SN_i) reactions.

Preparation: from alkenes and alcohols.

Reactions: hydrolysis, nitrite & nitro formation, nitrile & isonitrile formation. Williamson's ether synthesis: Elimination vs substitution.

Aryl Halides Preparation: (Chloro, bromo and iodo-benzene case): from phenol, Sandmeyer & Gattermann reactions.

Reactions (Chlorobenzene): Aromatic nucleophilic substitution (replacement by $-OH$ group) and effect of nitro substituent. Benzyne Mechanism: KNH_2/NH_3 (or $NaNH_2/NH_3$).

Reactivity and Relative strength of C-Halogen bond in alkyl, allyl, benzyl, vinyl and aryl halides.

UNIT-IV

Alcohols, Phenols and Ethers (Upto 5 Carbons)

Alcohols: Preparation: Preparation of 1°, 2° and 3° alcohols: using Grignard reagent, Ester hydrolysis, Reduction of aldehydes, ketones, carboxylic acid and esters.

Reactions: With sodium, HX (Lucas test), esterification, oxidation (with PCC, alk. KMnO₄, acidic dichromate, conc. HNO₃). Oppeneauer oxidation Diols: (Upto 6 Carbons) oxidation of diols. Pinacol-Pinacolone rearrangement.

Phenols: (Phenol case) Preparation: Cumene hydroperoxide method, from diazonium salts. Reactions: Electrophilic substitution: Nitration, halogenation and sulphonation. Reimer-Tiemann Reaction, Gattermann-Koch Reaction, Houben–Hoesch Condensation, Schotten – Baumann Reaction.

Ethers (aliphatic and aromatic): Cleavage of ethers with HI.

Aldehydes and ketones (aliphatic and aromatic): (Formaldehyde, acetaldehyde, acetone and benzaldehyde)

Preparation: from acid chlorides and from nitriles.

Reactions – Reaction with HCN, ROH, NaHSO₃, NH₂-G derivatives. Iodoform test. Aldol Condensation, Cannizzaro's reaction, Wittig reaction, Benzoin condensation. Clemensen reduction and Wolff Kishner reduction. Meerwein-Ponndorf Verley reduction.

PRACTICAL**Maximun Marks: 50****INSTRUCTIONS FOR EXAMINERS AND CANDIDATES**

The practical examination will be held in single session (morning/evening). Candidates are required to perform practicals from volumetric Analysis and TLC. Distribution of marks will be as under (Books may be consulted):

(1) Organic Chemistry Experiment

(a) Preparation = 10 marks (Preparation:5, recrystallisation: 3, Determination of melting point: 2)

(b) Purification and determination of melting point (5)

Physical Chemistry Experiment = 10 marks (initial Write up 5 marks (Theory/principle:1, Procedure:1, General Calculations:1)

Performance and result: 7 marks (Full credit up to 10% error)}

(3) Viva-Voce = 7 marks
 (4) Note Books = 5 marks
Total = 35 marks

SECTION A PHYSICAL CHEMISTRY

THERMOCHEMISTRY

1. Determination of heat capacity of calorimeter for different volumes.
2. Determination of enthalpy of neutralization of hydrochloric acid with sodium hydroxide.
3. Determination of enthalpy of ionization of acetic acid.
4. Determination of integral enthalpy of solution of salts (KNO₃, NH₄Cl).
5. Determination of enthalpy of hydration of copper sulphate.
6. Study of the solubility of benzoic acid in water and determination of enthalpy.

IONIC EQUILIBRIA

pH measurements

- a) Measurement of pH of different solutions like aerated drinks, fruit juices, shampoos and soaps (use dilute solutions of soaps and shampoos to prevent damage to the glass electrode) using pH-meter.
- b) Preparation of buffer solutions:
 - (i) Sodium acetate-acetic acid
 - (ii) Ammonium chloride-ammonium hydroxide

Measurement of the pH of buffer solutions and comparison of the values with theoretical values.

SECTION B ORGANIC CHEMISTRY

1. Purification of organic compounds by crystallization (from water and alcohol) and distillation.
2. Criteria of Purity: Determination of melting and boiling points.
3. Preparations: Mechanism of various reactions involved to be discussed. Recrystallisation, determination of melting point and calculation of quantitative yields to be done.
 - (a) Bromination of Phenol/Aniline
 - (b) Benzoylation of amines/phenols
 - (c) Oxime and 2,4-dinitrophenylhydrazone of aldehyde/ketone

SUGGESTED READINGS (Latest Edition):

1. Graham Solomon, T.W., Fryhle, C.B. & Snyder, S.A. Organic Chemistry, John Wiley & Sons (2014).
2. McMurry, J.E. Fundamentals of Organic Chemistry, 7th Ed. Cengage Learning India Edition, 2013.
3. Sykes, P. A Guidebook to Mechanism in Organic Chemistry, Orient Longman, New Delhi (1988).
4. Finar, I.L. Organic Chemistry (Vol. I & II), E.L.B.S.

5. Morrison, R.T. & Boyd, R.N. Organic Chemistry, Pearson, 2010.
6. Bahl, A. & Bahl, B.S. Advanced Organic Chemistry, S. Chand, 2010.
7. Barrow, G.M. Physical Chemistry Tata McGraw-Hill (2007).
8. Castellan, G.W. Physical Chemistry 4th Ed. Narosa (2004).
9. Kotz, J.C., Treichel, P.M. & Townsend, J.R. General Chemistry Cengage Learning India Pvt. Ltd., New Delhi (2009).
10. Mahan, B.H. University Chemistry 3rd Ed. Narosa (1998).
11. Petrucci, R.H. General Chemistry 5th Ed. Macmillan Publishing Co.: New York (1985).

B.SC. BIOTECHNOLOGY - I (SEMESTER II)
BT 2.3 A: ADVANCED MICROBIOLOGY
6 Credits: 4H(L) + 4H(P)

Time: 3 hours
Pass Marks: 35%

Maximum Marks: 100
Theory: 50 marks
Practical: 20 marks
Internal Assessment: 30 marks

Objective: In advancement to introductory microbiology I course, this course is intended to further understand microbial nutrition, culture (characteristics and media), genetics and their role in food poisoning. Students will also come to know about the microorganisms in interaction with human body.

Instruction for Paper Setter/Examiner

The question paper covering the entire course shall be divided into five parts: A, B, C, D & E.

Section-A

It will consist of 05 short answer questions from the entire syllabus. The candidates are required to attempt all the questions. Each question will carry 2 marks.

Section B, C, D & E

These will consist of 2 questions each from unit-I, II, III and IV of the syllabus and the candidates are required to attempt 1 question each from all the sections. Each question will carry 10 marks each. In numerical papers, there should be at least 1 numerical question each in any of the three sections of the paper.

Unit I

Microbial nutrition: Nutritional requirements & types of bacteria, media & its types, physiological conditions for the growth of microorganisms. choice of media and conditions of Incubation.

Culture characteristics: Colony and broth culture characteristics, Maintenance and preservation of pure Cultures.

Culture media: Preparation of culture media; types of culture media-selective/enrichment, differential, empirical and synthetic media

Unit II

Pure culture: Pure culture techniques; methods of culturing, aerobic and anaerobic bacteria; culture characteristics, smearing and staining, sterilization techniques.

Microbial growth: Growth curve, methods of measurements of growth, synchronous and diauxic growth, Factors affecting growth in continuous and batch cultures, mathematical expression of growth

Strain improvement: Methods of improvement and stability of biotechnologically importance cultures.

Unit III

Microbial Genetics: Conjugation, Transduction & Transformation.

Mutations –Types of mutations, Substitutions, Deletions and Insertion mutations. Spontaneous mutations. Detection of mutations. Ames Test, Mutagens-physical and chemical. Biological Nitrogen: Microbiology of symbiotic and Fixation. Non-symbiotic nitrogen fixation, Symbiotic Nitrogen fixing system, process of root nodule formation. Metabolism of free living and symbiotic microorganism. Nitrogen fixation mechanism with structure and function of nitrogenase enzyme.

Unit IV

Food Poisoning: Microbiology of food intoxications. Epidemiology of food intoxications. Food borne infections-mode of Transmission and their control (Clostridium, Salmonella, Shigella, Escheria Coli, Staphylococcus aureus, Aflatoxin and Algal toxins).

Microorganisms in air, control of airborne infection by microorganisms

Human Microbiome: Microbial flora of healthy human host- origin, distribution and occurrence of normal flora germ free and gnotobiotic life. Effect of antimicrobial agents

PRACTICALS (Marks 20)

1. Isolation of microorganisms by pour plate and streak plate method.
2. Culture Characteristic of microorganism on solid media
3. Strain improvement by physical & chemical mutagenesis.
4. Determination of coliform bacteria in water.
5. Microbial growth curve & measurement of microbial growth.
6. Factors affecting the growth of microorganisms.
7. Isolation of nitrogen fixing microorganism from root nodule.
8. Study of human skin micro-flora.

SUGGESTED READINGS (Latest Edition):

1. Davis, B.D. Dullbecco R. Elisena dn Ginsberg H.S. (1990), Microbiology: 4th Ed. Harper & Row, Publishers, Singapore
2. Tortora, G.J. Funke, B.R. and case, C.L. (1994, Microbiology : An introduction: 5th Ed. The Benjamin/Cummings Publishing Company, Inc.
3. Stainer, R.Y. (1995). General Microbiology. MacMillan Press, London.
4. Pelezar , M.T. (1995). Microbiology, Tata Mc Graw Hill Publishing, New Delhi.
5. Schlegel , H.G. (1995). General Microbiology 7th Ed., Cambridge Uni., Press.
6. Prescott and Dunn (1999). Industrial Microbiology 4th Ed. By S.K. Jain for CBS Publishers & Distributors, New Delhi.
7. Purobit,S.S. (2000). Microbiology: Fundamental and Applications (6th Ed). Agrobios, (India).
8. Postagate, J. (2000). Microbes & MAN 4TH Ed, Cambridge Uni., Press.
9. Tortora G.J. Funke B.R. (2001). Microbiology: An introduction. Benjamin Cummings.

B.SC. BIOTECHNOLOGY - I (SEMESTER II)
BT 2.3 B: BIOTECHNOLOGY AND HUMAN WELFARE
6 Credits: 4H(L) + 4H(P)

Time: 3 hours
Pass Marks: 35%

Maximum Marks: 100
Theory: 50 marks
Practical: 20 marks
Internal Assessment: 30 marks

Objective: The growing knowledge of biological sciences in relation to development in technology has brought significant changes in social and economic systems. So the objective of this course is to introduce the students to facts and concepts of this subject at basic stages, to familiarize the students about relationship of biotechnology to health, nutrition, environment, agriculture and industry etc.

Instruction for Paper Setter/Examiner

The question paper covering the entire course shall be divided into five parts: A, B, C, D & E.

Section-A

It will consist of 05 short answer questions from the entire syllabus. The candidates are required to attempt all the questions. Each question will carry 2 marks.

Section B, C, D & E

These will consist of 2 questions each from unit-I, II, III and IV of the syllabus and the candidates are required to attempt 1 question each from all the sections. Each question will carry 10 marks each. In numerical papers, there should be at least 1 numerical question each in any of the three sections of the paper.

Unit I

Introduction to biotechnology: definition, history (traditional and modern biotechnology), interdisciplinary areas of biotechnology, global impact of biotechnology.

Unit II

Biotechnology in agriculture: pest and disease resistant crops, stress tolerant crops, improvement of crop yield and nutritional quality. Introduction of Biopesticides and Biofertilizers. Biotechnological approaches for the management of pests, live stock improvement.

Unit III

Medical biotechnology: Human health care products from recombinant DNA technology (growth factors, enzymes, monoclonal antibodies), disease diagnosis (biomarkers, DNA probes), Strategies of vaccine development.

Unit IV

Industrial and environmental biotechnology: Industrial production of enzymes, whole cells and their applications. Fermented foods: production and applications. Role of Biotechnology in controlling environmental pollution.

PRACTICALS (MARKS 20)

(Note- Wherever wet lab experiments are not possible the principles and concepts can be demonstrated through any other material or medium including videos/virtual labs etc.)

1. Perform of ethanolic fermentation using Baker's yeast
2. Study of a plant part infected with a microbe
3. To perform quantitative estimation of residual chlorine in water samples
4. Case studies on Bioethics (any two)

SUGGESTED READINGS (Latest Edition)

1. Recombinant DNA technology by Watson et. al., (Scientific American Books).
2. Text book of Biotechnology by R.C Dubey.
3. Industrial Biotechnology by Prescott and Dunn.
4. Reddy P.R. and Jyothi A. (1991). Biotechnology Human Welfare. Hospital for Genetic Diseases.

B.SC. BIOTECHNOLOGY - I (SEMESTER II)
BT 2.4: PUNJABI COMPULSORY(ਲਾਜ਼ਮੀ ਪੰਜਾਬੀ)
4 Credits: 3H(L)+2H(P)

ਕੁੱਲ ਅੰਕ: 100

ਲਿਖਤੀ ਪਰੀਖਿਆ: 50 ਅੰਕ

ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ: 30 ਅੰਕ

ਪ੍ਰਯੋਗੀ ਪ੍ਰੀਖਿਆ: 20 ਅੰਕ

ਲਿਖਤੀ ਪ੍ਰੀਖਿਆ ਦਾ ਸਮਾਂ: 3 ਘੰਟੇ

ਵਿਸ਼ੇ ਵਿੱਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਲੋੜੀਂਦੇ ਅੰਕ : 35

ਲਿਖਤੀ ਪਰੀਖਿਆ ਵਿੱਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਲੋੜੀਂਦੇ ਅੰਕ :17

ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿੱਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਲੋੜੀਂਦੇ ਅੰਕ :11

ਪ੍ਰਯੋਗੀ ਪ੍ਰੀਖਿਆ ਵਿੱਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਲੋੜੀਂਦੇ ਅੰਕ :07

ਸਿਲੇਬਸ ਤੇ ਪਾਠ ਪੁਸਤਕਾਂ

ਭਾਗ:-ੳ **ਜੀਵਨ ਜੁਗਤ** - ਵਿਭਾਗ ਵੱਲੋਂ ਪ੍ਰਕਾਸ਼ਿਤ

ਭਾਗ:-ਅ **ਵਿਹਾਰਕ ਵਿਆਕਰਨ**

(ਅ.1) ਭਾਸ਼ਾ ਵੰਨਗੀਆਂ, ਭਾਸ਼ਾ ਦਾ ਟਕਸਾਲੀ ਰੂਪ, ਭਾਸ਼ਾ ਅਤੇ ਉਪ-ਭਾਸ਼ਾ ਦਾ ਅੰਤਰ ਅਤੇ ਅੰਤਰ ਸਬੰਧ. ਪੰਜਾਬੀ ਉਪ-ਭਾਸ਼ਾਵਾਂ ਦੇ ਪਛਾਣ ਚਿੰਨ।

(ਅ.2) ਵਾਕ ਬਣਤਰ: ਕਾਰਜ ਦੇ ਆਧਾਰ 'ਤੇ ਅਤੇ ਬਣਤਰ ਦੇ ਆਧਾਰ 'ਤੇ।

(ਅ.3) ਚਿੱਠੀ ਪੱਤਰ (ਨਿੱਜੀ, ਦਫ਼ਤਰੀ ਅਤੇ ਸਮਾਜਿਕ ਸਰੋਕਾਰਾਂ ਨਾਲ ਸਬੰਧਿਤ)

(ਅ.4) ਸਥਾਨਕ ਕਾਲਜ ਦੇ ਪੰਜਾਬੀ ਵਿਭਾਗ ਵੱਲੋਂ ਪ੍ਰਕਾਸ਼ਿਤ ਕੀਤੇ ਗਏ ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਕੋਸ਼ ਵਿੱਚੋਂ ਸਬੰਧਤ ਫੈਕਲਟੀ ਵਾਲੇ ਭਾਗ ਦੇ 101 ਤੋਂ 200 ਤੱਕ ਸ਼ਬਦਾਂ ਦਾ ਅੰਗਰੇਜ਼ੀ ਤੋਂ ਪੰਜਾਬੀ ਵਿਚ ਅਨੁਵਾਦ।

ਭਾਗ-ੲ : ਉਪਰੋਕਤ ਸਿਲੇਬਸ ਤੇ ਆਧਾਰਿਤ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਪ੍ਰਸ਼ਨ।

ਅੰਕ ਵੰਡ ਅਤੇ ਪੇਪਰ ਸੈਟਰ ਲਈ ਹਦਾਇਤਾਂ

1. ਸਿਲੇਬਸ ਦੇ ਸਾਰੇ ਭਾਗਾਂ ਵਿੱਚੋਂ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ।

2. ਪੇਪਰ ਨੂੰ ਤਿੰਨ ਭਾਗਾਂ ਓ, ਅ ਅਤੇ ਏ ਵਿੱਚ ਵੰਡਿਆ ਜਾਵੇਗਾ।

3. ਭਾਗ ਓ ਵਿੱਚੋਂ

(1) ਕਿਸੇ ਇਕ ਨਿਬੰਧ ਦਾ ਵਿਸ਼ਾ ਵਸਤੂ/ ਨਿਬੰਧ ਕਲਾ ਜਾਂ ਲੇਖਕ ਦਾ ਯੋਗਦਾਨ। (ਤਿੰਨ ਵਿੱਚੋਂ ਇਕ) 07 ਅੰਕ

(2) ਨਿਬੰਧਾਂ ਵਿਚਲੇ ਵਿਚਾਰਾਂ ਸਬੰਧੀ ਛੋਟੇ ਪ੍ਰਸ਼ਨ (ਪੰਜ ਵਿੱਚੋਂ ਦੋ) 2x3=06 ਅੰਕ

4. ਭਾਗ ਅ ਵਿੱਚੋਂ ਵਿਆਕਰਨ ਦੇ ਦੋਨਾਂ ਭਾਗਾਂ -ਅ.1, ਅ.2 ਵਿੱਚੋਂ ਵਰਣਾਤਮਕ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ।

(ਤਿੰਨ ਵਿੱਚੋਂ ਕੋਈ ਇਕ) 07 ਅੰਕ

5. ਕਿਸੇ ਇਕ ਵਿਸ਼ੇ 'ਤੇ ਚਿੱਠੀ ਪੱਤਰ ਲਿਖਣ ਲਈ ਕਿਹਾ ਜਾਵੇਗਾ

(ਤਿੰਨ ਵਿੱਚੋਂ ਇਕ) 05 ਅੰਕ

6. ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਕੋਸ਼ ਦੇ ਆਪਣੀ- ਆਪਣੀ ਫੈਕਲਟੀ ਨਾਲ ਸਬੰਧਤ ਭਾਗ ਦੇ 101 ਤੋਂ ਲੈ ਕੇ 200 ਤੱਕ

ਤਕਨੀਕੀ ਸ਼ਬਦਾਂ ਦੇ ਅੰਗਰੇਜ਼ੀ ਤੋਂ ਪੰਜਾਬੀ ਵਿਚ ਅਨੁਵਾਦ ਕਰਨ ਸਬੰਧੀ।

(ਪੱਚੀ ਵਿੱਚੋਂ ਕੋਈ ਵੀਹ) 10 ਅੰਕ

7. ਭਾਗ ੲ ਦੇ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ 15 ਪ੍ਰਸ਼ਨ, ਦੋ ਭਾਗਾਂ ਓ ਅਤੇ ਅ, ਵਿੱਚੋਂ ਪੁੱਛੇ ਜਾਣਗੇ। ਵਿਦਿਆਰਥੀ ਨੇ ਸਾਰੇ ਪ੍ਰਸ਼ਨਾਂ ਦੇ ਸੰਖੇਪ ਵਿਚ ਉੱਤਰ ਦੇਣੇ ਹੋਣਗੇ ਅਤੇ ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 2 ਅੰਕ ਹੋਣਗੇ। (ਨੋਟ: ਪੇਪਰ ਵਿਚ ਭਾਗ ਅ ਦੇ ਅ.3 ਅਤੇ ਅ.4 ਵਿੱਚੋਂ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਪ੍ਰਸ਼ਨ ਨਹੀਂ ਪੁੱਛੇ ਜਾਣਗੇ।)

15x1=15 ਅੰਕ

ਇੰਟਰਨਲ ਅਸੈਸਮੈਂਟ

ਕੁੱਲ 30 ਅੰਕ

3. ਕਲਾਸ ਹਾਜ਼ਰੀ/ਘਰੇਲੂ ਇਮਤਿਹਾਨ/ਅਸਾਈਨਮੈਂਟ
4. ਸਿਲੇਬਸ ਨਾਲ ਸਬੰਧਿਤ ਪਾਠ ਪੁਸਤਕ ਦੇ ਸਾਰੇ ਨਿਬੰਧਕਾਰਾਂ ਦਾ ਜੀਵਨ ਬਿਓਰਾ (Profile) ਚਿਤਰਾਂ ਸਮੇਤ ਤਿਆਰ ਕਰਨਾ।

ਜਾਂ

ਅਧਿਆਪਕ ਵਲੋਂ ਦੱਸੀ ਗਈ ਕਿਸੇ ਵੀ ਸਮਾਜਕ ਸਮੱਸਿਆ ਨਾਲ ਸਬੰਧਤ ਪੰਜਾਬੀ ਵਿੱਚ ਪੀ. ਪੀ. ਟੀ. ਪ੍ਰੋਜਨਟੇਸ਼ਨ ਦੇਣਾ, ਜਾਂ ਪ੍ਰੋਜੈਕਟ ਫਾਇਲ ਤਿਆਰ ਕਰਨਾ, ਜਾਂ ਆਪਣੇ ਨਾਲ ਸਬੰਧਤ ਫੈਕਲਟੀ ਦੇ ਕਿਸੇ ਵੀ ਵਿਸ਼ੇ/ਸਮੱਸਿਆ 'ਤੇ ਪੰਜਾਬੀ ਵਿੱਚ ਪੀ. ਪੀ. ਟੀ. ਪ੍ਰੋਜਨਟੇਸ਼ਨ ਦੇਣਾ।

ਪ੍ਰਯੋਗੀ ਪ੍ਰੀਖਿਆ (ਅੰਦਰੂਨੀ ਅਤੇ ਬਾਹਰੀ ਵਿਸ਼ੇਸ਼ਗ ਦੁਆਰਾ ਮੁਲਾਂਕਣ)

4*5= 20 ਅੰਕ

1. ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਬੋਲਣ ਦੀ ਮੁਹਾਰਤ
2. ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਲਿਖਣ ਦੀ ਮੁਹਾਰਤ
3. ਪੰਜਾਬੀ ਵਿਚ ਸਿਰਜਣਾਤਮਕ ਸਾਹਿਤ ਲਿਖਣ ਦਾ ਅਭਿਆਸ
4. ਸਬੰਧਿਤ ਕੋਰਸ ਦੇ ਵਿਸ਼ਿਆਂ ਸਬੰਧੀ ਜਾਣਕਾਰੀ ਦਾ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਵਿਚ ਲੇਖਣ

ਸਹਾਇਕ ਪਾਠ- ਸਮੱਗਰੀ

1. ਹਰਕੀਰਤ ਸਿੰਘ, ਭਾਸ਼ਾ ਵਿਗਿਆਨ ਅਤੇ ਪੰਜਾਬੀ ਭਾਸ਼ਾ, ਬਾਹਰੀ ਪਬਲੀਕੇਸ਼ਨ, ਦਿੱਲੀ, 1971.
2. ਬਲਦੇਵ ਸਿੰਘ ਚੀਮਾ, ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਵਿਗਿਆਨ ਅਤੇ ਵਿਆਕਰਨ (ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਦਾ ਵਿਸਾ ਕੋਸ਼) ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ 2000.
3. ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ: ਸਿਧਾਂਤ ਤੇ ਵਿਹਾਰ, ਚੇਤਨਾ ਪ੍ਰਕਾਸ਼ਨ, ਲੁਧਿਆਣਾ, 2008.
4. ਪ੍ਰੋਮ ਪ੍ਰਕਾਸ਼ ਸਿੰਘ, ਸਿਧਾਂਤਕ ਭਾਸ਼ਾ ਵਿਗਿਆਨ, ਮਦਾਨ ਪਬਲਿਸਰਜ਼, ਪਟਿਆਲਾ, 2002.
5. ਪ੍ਰੋਮ ਪ੍ਰਕਾਸ਼ ਸਿੰਘ, ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਸ੍ਰੋਤ ਤੇ ਬਣਤਰ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ, 1996.
6. ਖੋਜ ਪਤ੍ਰਿਕਾ (ਨਿਬੰਧ ਅੰਕ), ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ.
7. ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ, ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨ, ਭਾਗ ਪਹਿਲਾ, ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ, ਜਲੰਧਰ।
8. ਸੁਖਵਿੰਦਰ ਸਿੰਘ ਸੰਘਾ, ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਵਿਗਿਆਨ, ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ, ਜਲੰਧਰ, 1999.

ਨੋਟ: 1. ਤਿੰਨ ਸਾਲਾ ਡਿਗਰੀ ਕੋਰਸਾਂ ਵਿਚ ਤਿੰਨ ਸਾਲ ਲਾਜ਼ਮੀ ਪੰਜਾਬੀ ਪੜ੍ਹਨ ਵਾਲੇ ਅਤੇ ਕੇਵਲ ਇਕ ਸਾਲ ਲਾਜ਼ਮੀ ਪੰਜਾਬੀ ਪੜ੍ਹਨ ਵਾਲੇ ਸਾਰੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਭਾਗ ਪਹਿਲਾ, ਸਮੈਸਟਰ ਦੂਜਾ ਦਾ ਲਾਜ਼ਮੀ ਪੰਜਾਬੀ ਦਾ ਸਿਲੇਬਸ ਉਪਰੋਕਤ ਹੋਵੇਗਾ।

2. Only those students who have not studied Punjabi up to matriculation can opt for Elementary Punjabi. Other students will study compulsory Punjabi.

B.SC. BIOTECHNOLOGY - I (SEMESTER II)
BT 2.4 A: ELEMENTARY PUNJABI (ਮੁੱਢਲਾ ਗਿਆਨ)
4 Credits: 3H(L)+2H(P)

ਕੁੱਲ ਅੰਕ 100

ਲਿਖਤੀ ਪਰੀਖਿਆ : 50 ਅੰਕ

ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ : 30 ਅੰਕ

ਪ੍ਰਯੋਗੀ ਪ੍ਰੀਖਿਆ : 20 ਅੰਕ

ਲਿਖਤੀ ਪ੍ਰੀਖਿਆ ਦਾ ਸਮਾਂ: 3 ਘੰਟੇ

ਵਿਸ਼ੇ ਵਿੱਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਲੋੜੀਂਦੇ ਅੰਕ : 35

ਲਿਖਤੀ ਪਰੀਖਿਆ ਵਿੱਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਲੋੜੀਂਦੇ ਅੰਕ :17

ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿੱਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਲੋੜੀਂਦੇ ਅੰਕ :11

ਪ੍ਰਯੋਗੀ ਪ੍ਰੀਖਿਆ ਵਿੱਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਲੋੜੀਂਦੇ ਅੰਕ :07

ਭਾਗ-ੳ

(1) ਸ਼ਬਦ ਪ੍ਰਬੰਧ ਜੋੜਾਂ ਦੀ ਵਰਤੋਂ

(ੳ) ਦੋ ਅੱਖਰੀ ਸ਼ਬਦਾਂ ਦੇ ਜੋੜ

(ਅ) ਤਿੰਨ ਅੱਖਰੀ ਸ਼ਬਦਾਂ ਦੇ ਜੋੜ

(ੲ) ਬਹੁ ਅੱਖਰੀ ਸ਼ਬਦਾਂ ਦੇ ਜੋੜ

ਅੰਕ 10

(2) ਸ਼ਬਦਾਂ ਦੀਆਂ ਸ਼ਰੇਣੀਆਂ ਤੇ ਵਿਆਕਰਨਕ ਵਰਗਾਂ ਦੀ ਪਛਾਣ

(ੳ) ਸ਼ਬਦਾਂ ਦੀਆਂ ਸ਼ਰੇਣੀਆਂ ਦਾ ਸਿਧਾਂਤ, ਪਛਾਣ ਤੇ ਵਰਤੋਂ

(ਨਾਂਵ, ਪੜਨਾਂਵ, ਵਿਸ਼ੇਸ਼ਣ, ਕਿਰਿਆ, ਕਿਰਿਆ ਵਿਸ਼ੇਸ਼ਣ ਆਦਿ)

(ਅ) ਵਿਆਕਰਨਕ ਵਰਗਾਂ ਦੀ ਪਛਾਣ ਤੇ ਵਰਤੋਂ

(ਲਿੰਗ, ਵਚਨ, ਪੁਰਖ, ਕਾਲ)

ਅੰਕ 07

ਭਾਗ-ਅ

(1) ਸ਼ਬਦ ਬਣਤਰਾਂ ਤੇ ਵਿਆਕਰਨਕ ਇਕਾਈਆਂ ਦਾ ਸਿਧਾਂਤ ਤੇ ਵਰਤੋਂ

(ੳ) ਪੰਜਾਬੀ ਸ਼ਬਦ ਬਣਤਰਾਂ ਦਾ ਸਿਧਾਂਤ, ਪਛਾਣ ਤੇ ਵਰਤੋਂ

(ਅਗੇਤਰ, ਪਿਛੇਤਰ, ਸਮਾਸ, ਦੁਹਰਰੁਕਤੀ)

(ਅ) ਵਿਆਕਰਨਕ ਇਕਾਈਆਂ ਦਾ ਸਿਧਾਂਤ, ਪਛਾਣ ਤੇ ਵਰਤੋਂ

(ਵਾਕੰਸ਼, ਉਪ-ਵਾਕ ਤੇ ਵਾਕ)

(ੲ) ਸ਼ਬਦਾਂ ਦਾ ਵਿਆਕਰਨਕ ਮੇਲ: ਸਿਧਾਂਤ ਤੇ ਵਿਹਾਰ

ਅੰਕ 10

(2) ਵਿਸ਼ਰਾਮ ਚਿੰਨ੍ਹਾਂ ਦੀ ਪਛਾਣ ਤੇ ਵਰਤੋਂ।

ਅੰਕ 08

ਭਾਗ-ੲ ਸਾਰੇ ਸਿਲੇਬਸ ਤੇ ਅਧਾਰਿਤ ਆਬਜੈਕਟਿਵ ਟਾਈਪ ਪ੍ਰਸ਼ਨ।

ਅੰਕ 15*1=15

ਅੰਕ ਵੰਡ ਅਤੇ ਪੇਪਰ ਸੈਟਰ ਲਈ ਹਦਾਇਤਾਂ

- ਵਿਦਿਆਰਥੀ ਪਹਿਲੀ ਵਾਰ ਗੁਰਮੁਖੀ ਸਿਖ ਰਹੇ ਹਨ। ਹੋ ਸਕਦਾ ਹੈ ਵਿਦਿਆਰਥੀ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਤੋਂ ਅਨਜਾਣ ਹੋਣ। ਸੋ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਪੱਧਰ ਵਿਦਿਆਰਥੀਆਂ ਦੀ ਸੀਮਾ ਨੂੰ ਧਿਆਨ ਵਿਚ ਰੱਖ ਕੇ ਨਿਸ਼ਚਿਤ ਕੀਤਾ ਜਾਵੇ।
- ਸਾਰੇ ਭਾਗਾਂ ਵਿੱਚੋਂ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣ।

3. ਸਰਲ ਅਤੇ ਸਪਸ਼ਟ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣ।
4. ਵਰਣਾਤਮਕ ਪ੍ਰਸ਼ਨ ਨਾ ਪੁੱਛੇ ਜਾਣ।
5. ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਵਿਆਕਰਨ ਦੀ ਮੁੱਢਲੀ ਜਾਣਕਾਰੀ ਸਬੰਧੀ ਸੰਖੇਪ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣ। ਲੋੜ ਅਨੁਸਾਰ ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਛੋਟੇ ਜਾਂ ਚੋਣ ਦੇਣੀ ਲਾਜ਼ਮੀ ਹੈ।

ਇੰਟਰਨਲ ਅਸੈਸਮੈਂਟ

ਕੁੱਲ 30 ਅੰਕ

1. ਕਲਾਸ ਹਾਜ਼ਰੀ/ਘਰੇਲੂ ਇਮਤਿਹਾਨ/ਅਸਾਈਨਮੈਂਟ
2. ਅਧਿਆਪਕ ਵੱਲੋਂ ਵਿਦਿਆਰਥੀ ਦੇ ਪੱਧਰ ਅਨੁਸਾਰ ਪੰਜਾਬੀ ਵਿਚ ਦਿੱਤਾ ਗਿਆ ਕੋਈ ਵੀ ਕਾਰਜ।

ਪ੍ਰਯੋਗੀ ਪ੍ਰੀਖਿਆ (ਅੰਦਰੂਨੀ ਅਤੇ ਬਾਹਰੀ ਵਿਸ਼ੇਸ਼ਗ ਦੁਆਰਾ ਮੁਲਾਂਕਣ)

1. ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਬੋਲਣ ਦੀ ਮੁਹਾਰਤ
2. ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਲਿਖਣ ਦੀ ਮੁਹਾਰਤ
3. ਪੰਜਾਬੀ ਵਿਚ ਸਿਰਜਣਾਤਮਕ ਸਾਹਿਤ ਲਿਖਣ ਦਾ ਅਭਿਆਸ
4. ਸਬੰਧਿਤ ਕੋਰਸ ਦੇ ਵਿਸ਼ਿਆਂ ਸਬੰਧੀ ਜਾਣਕਾਰੀ ਦਾ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਵਿਚ ਲੇਖਣ 4*5= 20 ਅੰਕ

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4. ਰਾਜਿੰਦਰ ਸਿੰਘ, **ਪੰਜਾਬੀ ਗਿਆਨ ਸੀ.ਡੀ.** (ਕੰਪਿਊਟਰ ਐਪਲੀਕੇਸ਼ਨ ਟੂ-ਲਰਨ ਐਂਡ ਟੀਚ ਪੰਜਾਬੀ) ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ, 2011
5. Hardev Bahri, **Teach Yourself Punjabi**, Publication Bureau, Punjabi University, patiala. 2011
6. Henry A. Gleason and Harjeet Singh Gill, **A Start in Punjabi**, Punjabi University, Patiala 1997.
7. Ujjal Singh Bahri and Paramjit Singh Walia, **Introductory Punjabi**, Publication Bureau, Punjabi University, patiala. 2011

ਨੋਟ: Only those students who have not studied Punjabi up to matriculation can opt for Elementary Punjabi. Other students will study compulsory Punjabi.

B.SC. BIOTECHNOLOGY - I (SEMESTER II)
PAPER BT 2.5: ENGLISH COMMUNICATION SKILLS
(COMMON FOR B.SC [MEDICAL, NON-MEDICAL, BIO-TECH., AGRICULTURE, CSM], BCA PART-I)
4 Credits: 3H(L)+2H(P)

Time: 3 hours
Pass Marks: 35%

Maximum Marks: 100
Internal Assessment: 30 marks
Theory: 50 marks
Practical: 20 marks

Section - A

Text Prescribed: *Flames of Inspiration*, edited by Department of English, Khalsa College, Patiala

Testing:

- Q1. (a) One essay-type question with an internal alternative on summary, central idea and theme in about 250 words. 10 marks
 (b) Five short answer questions to be attempted out of the given eight from the prescribed text in about 30 words each. 5 X 2=10 marks

Section-B

Q.2. Writing Skills:

a. Letter Writing: Formal and Informal letters

Testing: One letter to be attempted out of the given two 7 marks

b. Banner Writing on the given topic (Social, Political, Economic and Religious) 5 marks

Q.3. Grammar and Vocabulary:

(a) Grammar

Prescribed Text: *Oxford Practice Grammar* by John Eastwood, Oxford University Press, 2004

1. Ex. 40-59 6 marks

Testing: Attempt any 6 sentences out of the given 8

2. Ex.60 to 75 6 marks

Testing: Attempt any 6 sentences out of the given 8

(b) Vocabulary

Prescribed Text: *The Students' Companion* by Wilfred D. Best, Harper Collins Publishers, 2010

1. Antonyms: pages 131 & 132 3 marks

Testing: Attempt any 6 Antonyms out of the given 8

2. Synonyms: pages 135 & 136 3 marks

Testing: Attempt any 6 Synonyms out of the given 8

PRACTICAL**20 marks**

Topics to be covered

1. Describing the Recipe of your favourite dish
(step- wise description of the dish is required) 5 marks
2. Describing the directions to someone who
wants to reach a particular destination 5 marks
3. Telephonic Conversation in pairs 5 marks
4. Extempore- speaking: impromptu on the given topics 5 marks

Book Recommended for Grammar and Composition:

The Written Word by Vandana R. Singh, Oxford University Press, 2006.