KHALSA COLLEGE AMRITSAR

-An Autonomous College

Affiliated to Guru Nanak Dev University, Amritsar.

BACHELOR OF VOCATION (B.Voc.)FOOD PROCESSING

(Semester I TO IV)

FOR

Session 2021-22

PG DEPARTMENT OF FOOD SCIENCE & TECHNOLOGY

BACHELOR OF VOCATION (B.Voc.) FOOD PROCESSING

PART I & II (Semester I TO IV)

ORDINANCES FOR THE Bachelor of Vocation (B.Voc.) FOOD PROCESSING COURSE

ELIGIBILITY FOR ADMISSION IN B.VOC.

A candidate will be eligible to join 1st semester of Bachelor of Vocation(B.Voc.) Food Processing course, if he/she has passed10+2 examination(any stream/ Arts/Science/Commerce) or any other examination recognized as equivalent thereto without reappear.

Bachelor of Vocation (B. Voc.) is launched under the scheme of University Grants Commission on skill development based higher education leading to Bachelor of Vocation (B. Voc.) Degree with multiple exits as Diploma/Advanced Diploma under the National Skill Qualification framework. The B.Voc. programme incorporate specific job roles and their National Occupational Standards along broad based general education. This course has been started in order to make education relevant and to create 'industry fit' skilled workforce. B. Voc. programme has been designed as per National Skill Qualification Framework emphasizing on skill based education.

NSQF LEVELS:

Name of the Course	NSQF Level Certificate	Cumulative Credits
Certificate	Level – 4	18 credits
Diploma	Level – 5	36 credits
Advanced Diploma	Level – 6	72 credits
B.Voc Degree	Level – 7	108 credits

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. Accordingly, one Credit would mean equivalent of 14-15 periods of 60 minutes each or 28 – 30 hrs of workshops / labs.

2. Scheme of Instructions-Examination

For each examination, every student admitted to the courses under the semester system must be on the rolls of the institution, and shall send his/her admission form and fees for the examination through the Principal/Head of the Institution, accompanied by the following certificates.

a) Of having attended at least 75% of the total number of lectures delivered in each theory and practical course separately. Deficiency in lectures may be condoned as per ordinances of college/University. If in particular semester, a student falls short of attendance in a maximum of two courses, he/she would be permitted to appear in the semester examination of the papers in which he/she fulfils the attendance requirements. The course/s in which the student does not fulfill the minimum attendance requirements, he/she shall not be permitted to appear in the semester examination of such course/s, and shall be declared as having failed in such course/s. A student who is falling short of

attendance in maximum two courses, he/she shall be required to attend the minimum number of lectures which werefalling short, during next year when the course/s is/are offered.

b) Of having good moral character.

c) The syllabi, courses of reading and regulations for the courses shall be notified by thecollege from time to time, and shall be deemed to constitute an integral part of ordinances. Course evaluation under the semester system of evaluation shall be done on marks basis. If a course has both the theory and practical components, the student will be required to pass both the components, separately. However, if the student fails in theory, but is passing in practical examination of that course, he/she will be required to clear the theory paper only, and vice-versa.

d) Carry on system for various semester examinations.

I. Courses having six semester duration:

a. There shall be no condition for promoting a student from first semester to second semester

b. However, the student shall be promoted to the third semester only if he/she has passed at least 50% courses/papers of the first two semesters.

c. There shall be no condition for promoting a student from third semester to fourth semester.

d. However a student shall be promoted to fifth semester only if he/she has passed atleast 50% courses/ papers of the first four semesters.

e. There shall be no condition for promoting a student from fifth semester to sixth semester. After a period of sixsemesters the student shall be given a period of two consecutive years to pass.

Note 1: No special chance or exemption shall be allowed beyond what is stated in the above Ordinances.

Note 2: Failing students shall appear in the examination in the regular semester examinations next year i.e. reappear of examination for an odd semester shall be conducted along with the next odd semester, and even semester along with the next even semester and there shall be no special supplementary examinations.

Note 3: If 50% of the courses/papers required to pass involve a fraction, the fraction of the course/paper will be treatedas a full course. For example, if in a year there are 13 courses in two semesters, the candidate will be required to pass minimum of 7 courses/papers.

e) The pass marks for a course (paper) shall be 35% at Bachelor‟s Degree level. Pass marks in aggregate forall the courses shall be 40%. Re-evaluation shall be allowed as per ordinances.

If a candidate obtains less than 40% marks in aggregate at the end of final semester/year of his/her course but is pass in all individual papers, the result of such a candidate shall be declared as „fail‟, and he/she shall be required to improve

his/her score in one or more papers in any of the semesters/year so as to obtain a minimum of 40% marks inaggregate to pass the examination.

f) **The medium of instructions shall be English**.

g) Grace marks will be allowed as per college/University ordinances.

3. Discipline

Each student shall be under the control and discipline of the concerned institution. In case of any misconduct on the part of a student, the institution shall have a power to take disciplinary action

against the defaulter, to the extent of cancellation of admission of the defaulting student from the rolls of the institution.

4. Result-Division-Degree

The successful candidates shall be classified into the following divisions:

a) **First Division with distinction**-Those who obtain 75% or more marks at the end of their course.

b) **First Division**-Those who obtain 60% or more marks at the end of their course.

c) **Second Division**- Those who obtain 50% or more marks, but less than 60% marks at the end of theircourse.

d) **Third Division**- Those who obtain 40% or more marks, but less than 50% marks at the end of their course. The successful candidate shall be awarded the degree in the subject of his/her study indicating the divisions obtained on the basis of the result of all the semester examinations. A student who does not complete theprogramme of study within the minimum duration of the course of his/her study, or fails in any course, shallnot be eligible for any merit position/medal/award of the University.

COMPULSORY TRAINING

Training of one **month in relevant sector for completion of Diploma** and **1and half month for completion of advance Diploma is** mandatory. Report based on satisfactory/unsatisfactory shall be sent by Head of the Department.

INDUSTRIAL/INSTITUTIONAL PROJECT

A candidate shall have to undertake an Industrial/Institutional Project in college in the Final year (6^{th}Semester) and submit the report for same by 30^{th} April extendable to 30^{th} May under special circumstances by the permission of the Head of concerned Department.

Programme Specific Outcomes (PSO)

PSO1:-To make students aware of food composition, analysis and technological aspects of food processing and preservation.
PSO2:- To understand post-harvest analysis of food that help them to build entrepreneurship techniques along with the environmental challenges.
PSO3: To make students confident enough to handle various challenges that might come at technological and qualitative aspect in food industry.
PSO4:- TO make students build their own careers and others also in food bussiness by managing various entrepreneurship ventures

P G DEPARTMENT OF FOOD SCIENCE &
TECHNOLOGYKHALSA COLLEGE AMRITSAR
SYLLABUS

Bachelor of Vocation (B.VOC.) FOOD PROCESSING SEMESTER – ISESSION 2021-22
Study Scheme

Semester I

Sr. No	Subject code	Subject	Credit Periods			Marks			
			T	P	Total Credits	Theory	Practical	IntAsst	Total
GENERAL EDUCATION COMPONENT									
1	**BVGC-101**	Communication Skills in English-I	6	-	6	25	12	13	50
2	**BVGC-102 A** **BVGC-102 BBVGC-102 C**	Punjabi Compulsory OR *Basic Punjabi *(Mudhli* Punjabi) Punjab History & Culture	6	-	6	37	-	13	50
4	**BVGC-103**	**Drug Abuse-I	3	-	3	50	-	-	-
SKILL COMPONENT									
5	**BVFP-104**	Food Processing & Preservation	3	-	3	45	-	15	60
6	**BVFP-105**	Food and Nutrition	3	-	3	45	-	15	60
7	**BVFP-106**	Fruits and Vegetable Processing	3	-	3	45	-	15	60
8	**BVFP-107**	Experiments in Food Processing& Preservation	-	3	3	-	30	10	40
9	**BVFP-108**	Experiments in Food and Nutrition	-	3	3	-	30	10	40
10	**BVFP-109**	Experiments in Fruits and Vegetable Processing	-	3	3	-	30	10	40
		TOTAL							400

NSQF Level 4

***Paper in lieu of Punjabi Compulsory.**
****This paper marks will not be included in the total marks.(Qualifying paper)**
1 Credit = 1 hour/Theory OR Practical /week

Bachelor of Vocation (B.VOC.) FOOD PROCESSING SEMESTER – IISESSION 2021-22

Semester II

Sr. No	Subject code	Subject	Credit Periods			Marks			
			T	P	Total Credits	Theory	Practical	IntAsst	Total
GENERAL EDUCATION COMPONENT									
1	**BVGC-201**	Communication Skills in English-II	6	-	6	25	12	13	50
2	**BVGC-202 A** **BVGC-202 BBVGC-202 C**	Punjabi Compulsory OR Basic Punjabi *(Mudhli* Punjabi) Punjab History & Culture	6	--	6	37	-	13	50
3	**BVGC-203**	**Drug Abuse-II	3	-	3	50	-	-	-
SKILL COMPONENT									
4	**BVFP-204**	Food Chemistry	3	-	3	45	-	15	60
5	**BVFP-205**	Food Hygiene & Sanitation	3	-	3	45	-	15	60
6	**BVFP-206**	Cereal Milling Technology	3	-	3	45	-	15	60
7	**BVFP-207**	Experiments in Food Chemistry	-	3	3	-	30	10	40
8	**BVFP-208**	Experiments in Food Hygiene& Sanitation	-	3	3	-	30	10	40
9	**BVFP-209**	Experiments in Cereal Milling Technology	-	3	3	-	30	10	40
10	**BVFP-210**	Industrial Training						**Grade**	**Satisfactory/ Unsatisfactory**
		TOTAL							**400**

NSQF Level 5

***Paper in lieu of Punjabi Compulsory.**
****This paper marks will not be included in the total marks.(Qualifying paper)**
1 Credit = 1 hour/Theory OR Practical /week

Bachelor of Vocation (B.VOC.) FOOD PROCESSING SEMESTER – IIISESSION 2021-22

Semester III

Sr. No	Subject code	Subject	Credit Periods			Marks			
			T	P	Total Credits	Theory	Practical	Int Asst	Total
GENERAL EDUCATION COMPONENT									
3	**BVGC-301**	COMPUTER APPLICATIONS	3	-	3	45	-	15	60
2	**BVGC-302**	EXPERIMENTS IN COMPUTERAPPLICATIONS	--	3	3	--	30	10	40
3	**BVGC-303***	ENVIRONMENTAL STUDIES–I	3	-	3	50	-	-	50
SKILL COMPONENT									
4	**BVFP-304**	CEREALS AND PULSES TECHNOLOGY	3	-	3	45	-	15	60
5	**BVFP-305**	FOOD MICROBIOLOGY	3	-	3	45	-	15	60
6	**BVFP-306**	DAIRY TECHNOLOGY-I	3	-	3	45	-	15	60
7	**BVFP-307**	EXPERIMENTS IN CEREALS ANDPULSES TECHNOLOGY	-	3	3	-	30	10	40
8	**BVFP-308**	EXPERIMENTS IN FOOD MICROBIOLOGY	-	3	3	-	30	10	40
9	**BVFP-309**	EXPERIMENTS IN DAIRY TECHNOLOGY-I	-	3	3	-	30	10	40
		TOTAL							**400**

***This paper marks will not be included in the total marks.(Qualifying paper)**
1 Credit = 1 hour/Theory OR Practical /week

Bachelor of Vocation (B.VOC.) FOOD PROCESSING SEMESTER – IVSESSION 2021-22

Semester IV

Sr. No	Subject code	Subject	Credit Periods			Marks			
			T	P	Total Credits	Theory	Practical	IntAsst	Total
GENERAL EDUCATION COMPONENT									
1	**BVGC-401**	FOOD SAFETY AND LAWS	3	-	3	45		15	60
2	**BVGC-402**	EXPERIMENTS IN FOOD SAFETYAND LAWS	--	3	3	--	30	10	40
3	**BVGC-403***	ENVIRONMENTAL STUDIES–II	3	-	3	50	-	-	50
SKILL COMPONENT									
4	**BVFP-404**	BAKERY AND CONFECTIONERY TECHNOLOGY	3	-	3	45	-	15	60
5	**BVFP-405**	DAIRY TECHNOLOGY-II	3	-	3	45	-	15	60
6	**BVFP-406**	FOOD PACKAGING	3	-	3	45	-	15	60
7	**BVFP-407**	EXPERIMENTS INBAKERY AND CONFECTIONARY TECHNOLOGY	-	3	3	-	30	10	40
8	**BVFP-408**	EXPERIMENTS INDAIRY TECHNOLOGY-II	-	3	3	-	30	10	40
9	**BVFP-409**	EXPERIMENTS INFOODPACKAGING	-	3	3	-	30	10	40
10	**BVFP-410**	INDUSTRIAL TRAINING							**Satisfactory/ Unsatisfactory**
		TOTAL							**400**

NSQF 6

***This paper marks will not be included in the total marks.(Qualifying paper)**
1 Credit = 1 hour/Theory OR Practical /week

Bachelor of Vocation (B.Voc.) FOOD PROCESSING SEMESTER – I

SESSION 2021-22

BVGC-101COMMUNICATIONSKILLS IN ENGLISH–I

SESSION 2021-22

Bachelor of Vocation (B.Voc.)

(Software Development, Theatre and Stage Craft, Food Processing, Textile Design & Apparel Technology)

Semester – I

PAPER – BVGC 101: COMMUNICATION SKILLS IN ENGLISH–I

Time: 3 Hours **Max. Marks: 50**

Theory Marks: 25

Practical Marks: 12

Assessment: 13

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section. (5X5=25 Marks)

Course Objectives:

I:Todevelopcompetenceinwrittencommunication.

II:To inculcate innovative and critical thinking among the students.

III:Toenablethemtograsptheapplicationofcommunicationtheories.

IV:To acquire the knowledge of latest technology related with communication skills.

V:To provide knowledge of multifarious opportunities in the field of this programme.

The syllabus is divided in four sections as mentioned below:

Section–A

Reading Skills: Reading Tactics and strategies; Reading purposes–kinds of purposes andassociated comprehension.

Section–B

Reading for understanding concepts, details, coherence.Activities:

- Short comprehension questions based on content and development of ideas

Section–C

Writing Skills: Writing styles for application, personal letter, official/ business letter.

Activities*:*

- Formatting personal and business letters.

Section–D

Resume, memo and notices; outline and revision.

Activities:

- Converting a biographical note into a sequenced resume or vice-versaWriting
- notices for circulation/boards

Recommended Books:

- *Oxford Guide to Effective Writing and Speaking* by John Seely.
- *English Grammar in Use* (Fourth Edition) by Raymond Murphy, CUP146

SESSION 2021-22

Bachelor of Vocation (B.Voc.)

(Software Development, Theatre and Stage Craft, Food Processing, Textile Design &Apparel Technology)

Semester – I

PAPER – BVGC 101: COMMUNICATION SKILLS IN ENGLISH–I

Practical Marks: 12

Course Contents:-

1. Assignment on selected topics in about 700-1000 words.
2. Comprehension passage

Questions:-

1. Handwritten Assignment should be submitted to the concerned teachers in a stick file.
2. Short comprehension questions based on unseen passage.

Note: Oral test will be conducted by external examiner with the help of internal examiner.

B.Sc. (Hons. – Physics, Chemistry, Mathematics), B.Sc. Bio-Tech./IT/Fashion Designing/Food Sc./BCA, BA-JMC/ B.Sc. in Computational Statistics and Data Analytics, B.Voc.(Software Development, Theatre and Stage Craft, Food Processing, Textile Design & Apparel Technology)

SEMESTER-I
ਲਾਜ਼ਮੀ ਪੰਜਾਬੀ

ਸਮਾਂ : 3 ਘੰਟੇ

ਥਿਊਰੀ ਅੰਕ : 37
ਇੰਟਰਨਲ ਅਸੈੱਸਮੈਂਟ : 13
ਕੁੱਲ ਅੰਕ : 50

ਪਾਠ-ਕ੍ਰਮ

ਭਾਗ-ਪਹਿਲਾ

ਸਾਹਿਤ ਦੇ ਰੰਗ (ਭਾਗ ਪਹਿਲਾ -ਕਵਿਤਾ ਅਤੇ ਕਹਾਣੀ)
ਡਾ. ਮਹਿਲ ਸਿੰਘ (ਸੰਪਾ.), ਰਵੀ ਸਾਹਿਤ ਪ੍ਰਕਾਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।
(ਲੇਖਕ ਦਾ ਜੀਵਨ ਅਤੇ ਰਚਨਾ/ਸਾਰ/ਵਿਸ਼ਾ-ਵਸਤੂ)

ਭਾਗ-ਦੂਜਾ

ਇਤਿਹਾਸਿਕ ਯਾਦਾਂ
ਸ. ਸ. ਅਮੋਲ (ਸੰਪਾ.), ਪੰਜਾਬੀ ਸਾਹਿਤ ਪ੍ਰਕਾਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।
(ਨਿਬੰਧ 1 ਤੋਂ 6 ਤਕ ਸਾਰ/ ਵਿਸ਼ਾ-ਵਸਤੂ/ਸ਼ੈਲੀ)

ਭਾਗ-ਤੀਜਾ

(ੳ) ਪੈਰ੍ਹਾ ਰਚਨਾ (ਤਿੰਨਾਂ ਵਿਚੋਂ ਇਕ)
(ਅ) ਪੈਰ੍ਹਾ ਪੜ੍ਹ ਕੇ ਪ੍ਰਸ਼ਨਾਂ ਦੇ ਉੱਤਰ

ਭਾਗ-ਚੌਥਾ

(ੳ) ਭਾਸ਼ਾ ਵੰਨਗੀਆਂ : ਭਾਸ਼ਾ ਦਾ ਟਕਸਾਲੀ ਰੂਪ, ਭਾਸ਼ਾ ਅਤੇ ਉਪ-ਭਾਸ਼ਾ ਵਿਚਲਾ ਅੰਤਰ, ਪੰਜਾਬੀ ਉਪ-ਭਾਸ਼ਾਵਾਂ ਦੇ ਪਛਾਣ-ਚਿੰਨ੍ਹ
(ਅ) ਪੰਜਾਬੀ ਭਾਸ਼ਾ - ਨਿਕਾਸ ਤੇ ਵਿਕਾਸ

ਅੰਕ-ਵੰਡ ਅਤੇ ਪ੍ਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

1. ਸਿਲੇਬਸ ਦੇ ਚਾਰ ਭਾਗ ਹਨ ਪਰ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੇ ਪੰਜ ਭਾਗ ਹੋਣਗੇ।
2. ਪਹਿਲੇ ਚਾਰ ਭਾਗਾਂ ਵਿਚ 02-02 ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ। ਹਰੇਕ ਭਾਗ ਵਿਚੋਂ 01-01 ਪ੍ਰਸ਼ਨ ਕਰਨਾ ਲਾਜ਼ਮੀ ਹੋਵੇਗਾ। ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ ਬਰਾਬਰ (08) ਅੰਕ ਹੋਣਗੇ।
3. ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਦੇ ਪੰਜਵੇਂ ਭਾਗ ਵਿਚ ਸਾਰੇ ਸਿਲੇਬਸ ਵਿਚੋਂ 01-01 ਅੰਕ ਦੇ ਛੇ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ, ਜਿਨ੍ਹਾਂ ਵਿਚੋਂ 05 ਪ੍ਰਸ਼ਨਾਂ ਦੇ ਉੱਤਰ ਦੇਣਾ ਲਾਜ਼ਮੀ ਹੋਵੇਗਾ।
4. ਪੇਪਰ ਸੈੱਟ ਕਰਨ ਵਾਲਾ ਜੇਕਰ ਚਾਹੇ ਤਾਂ ਪ੍ਰਸ਼ਨਾਂ ਦੀ ਵੰਡ ਅੱਗੋਂ ਵੱਧ ਤੋਂ ਵੱਧ ਚਾਰ ਉਪ-ਪ੍ਰਸ਼ਨਾਂ ਵਿਚ ਕਰ ਸਕਦਾ ਹੈ।

ਨੋਟ : ਇੰਟਰਨਲ ਅਸੈੱਸਮੈਂਟ 13 ਅੰਕਾਂ ਦੀ ਹੈ, ਜੋ ਕਾਲਜ ਵੱਲੋਂ ਨਿਰਧਾਰਿਤ ਦਿਸ਼ਾ ਨਿਰਦੇਸ਼ਾਂ ਅਨੁਸਾਰ ਇਨ੍ਹਾਂ ਅੰਕਾਂ ਤੋਂ ਵੱਖਰੀ ਹੋਵੇਗੀ। ਇਸ ਪੇਪਰ ਦੇ ਕੁੱਲ ਅੰਕ 37+13 = 50 ਹਨ।

B.Sc. (Hons. – Physics, Chemistry, Mathematics),

B.Sc. Bio-Tech./IT/Fashion Designing/Food Sc./BCA, BA-JMC/ B.Sc. in Computational Statistics and Data Analytics, B.Voc. (Software Development, Theatre and Stage Craft, Food Processing, Textile Design & Apparel Technology)

SEMESTER-I

ਮੁੱਢਲੀ ਪੰਜਾਬੀ

(In Lieu of Compulsory Punjabi)

ਸਮਾਂ : 3 ਘੰਟੇ

ਥਿਊਰੀ ਅੰਕ : 37
ਇੰਟਰਨਲ ਅਸੈੱਸਮੈਂਟ : 13
ਕੁੱਲ ਅੰਕ : 50

ਪਾਠ-ਕ੍ਰਮ

ਭਾਗ-ਪਹਿਲਾ

ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਤੇ ਗੁਰਮੁਖੀ ਲਿਪੀ :

(ੳ) ਨਾਮਕਰਣ ਤੇ ਸੰਖੇਪ ਜਾਣ-ਪਛਾਣ : ਗੁਰਮੁਖੀ ਵਰਣਮਾਲਾ, ਅੱਖਰ ਕ੍ਰਮ, ਸਵਰ ਵਾਹਕ (ੳ, ਅ, ੲ), ਲਗਾਂ-ਮਾਤਰਾਂ, ਪੈਰ ਵਿਚ ਬਿੰਦੀ ਵਾਲੇ ਵਰਣ, ਪੈਰ ਵਿਚ ਪੈਣ ਵਾਲੇ ਵਰਣ, ਬਿੰਦੀ, ਟਿੱਪੀ, ਅੱਧਕ

(ਅ) ਸਿਖਲਾਈ ਤੇ ਅਭਿਆਸ

ਭਾਗ-ਦੂਜਾ

ਗੁਰਮੁਖੀ ਆਰਥੋਗਰਾਫੀ ਅਤੇ ਉਚਾਰਨ :

ਸਵਰ, ਵਿਅੰਜਨ : ਮੁੱਢਲੀ ਜਾਣ-ਪਛਾਣ ਅਤੇ ਉਚਾਰਣ, ਮੁਹਾਰਨੀ, ਲਗਾਂ-ਮਾਤਰਾਂ ਦੀ ਪਛਾਣ

ਭਾਗ-ਤੀਜਾ

ਪੰਜਾਬੀ ਸ਼ਬਦ-ਜੋੜ :

ਮੁਕਤਾ (ਦੋ ਅੱਖਰਾਂ ਵਾਲੇ ਸ਼ਬਦ, ਤਿੰਨ ਅੱਖਰਾਂ ਵਾਲੇ ਸ਼ਬਦ), ਸਿਹਾਰੀ ਵਾਲੇ ਸ਼ਬਦ, ਬਿਹਾਰੀ ਵਾਲੇ ਸ਼ਬਦ, ਔਂਕੜ ਵਾਲੇ ਸ਼ਬਦ, ਦੁਲੈਂਕੜ ਵਾਲੇ ਸ਼ਬਦ, ਲਾਂ ਵਾਲੇ ਸ਼ਬਦ, ਦੁਲਾਵਾਂ ਵਾਲੇ ਸ਼ਬਦ, ਹੋੜੇ ਵਾਲੇ ਸ਼ਬਦ, ਕਨੌੜੇ ਵਾਲੇ ਸ਼ਬਦ, ਲਗਾਖਰ (ਬਿੰਦੀ, ਟਿੱਪੀ, ਅੱਧਕ) ਵਾਲੇ ਸ਼ਬਦ

ਭਾਗ-ਚੌਥਾ

ਸ਼ੁੱਧ-ਅਸ਼ੁੱਧ ਸ਼ਬਦ

ਅੰਕ-ਵੰਡ ਅਤੇ ਪ੍ਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

1. ਪਹਿਲੇ ਭਾਗ ਵਿਚੋਂ ਚਾਰ ਵਰਣਨਾਤਮਕ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ ਜਿਨ੍ਹਾਂ ਵਿਚੋਂ ਤਿੰਨ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਉੱਤਰ ਦੇਣਾ ਲਾਜ਼ਮੀ ਹੈ। ਹਰ ਪ੍ਰਸ਼ਨ ਦੇ ਚਾਰ-ਚਾਰ ਅੰਕ ਹਨ। **(3x4)=12 ਅੰਕ**
2. ਭਾਗ ਦੂਸਰਾ ਵਿਚੋਂ ਦੋ-ਦੋ ਅੰਕ ਦੇ ਪੰਜ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ। ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਲਾਜ਼ਮੀ ਹਨ। **(5x2)=10 ਅੰਕ**
3. ਭਾਗ ਤੀਸਰਾ ਵਿਚੋਂ ਤਿੰਨ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ ਜਿਨ੍ਹਾਂ ਵਿਚੋਂ ਦੋ ਪ੍ਰਸ਼ਨ ਹੱਲ ਕਰਨੇ ਲਾਜ਼ਮੀ ਹਨ। ਇਨ੍ਹਾਂ ਦੇ ਪੰਜ-ਪੰਜ ਅੰਕ ਹਨ। **(2x5)=10 ਅੰਕ**
4. ਭਾਗ ਚੌਥਾ ਵਿਚ ਪੰਜ ਅਸ਼ੁੱਧ ਸ਼ਬਦਾਂ ਨੂੰ ਸ਼ੁੱਧ ਕਰਕੇ ਲਿਖਣਾ ਹੋਵੇਗਾ। **(5x1)=05 ਅੰਕ**

ਨੋਟ: ਇੰਟਰਨਲ ਅਸੈੱਸਮੈਂਟ 13 ਅੰਕਾਂ ਦੀ ਹੈ, ਜੋ ਕਾਲਜ ਵੱਲੋਂ ਨਿਰਧਾਰਿਤ ਦਿਸ਼ਾ ਨਿਰਦੇਸ਼ਾਂ ਅਨੁਸਾਰ ਇਨ੍ਹਾਂ ਅੰਕਾਂ ਤੋਂ ਵੱਖਰੀ ਹੋਵੇਗੀ। ਇਸ ਪੇਪਰ ਦੇ ਕੁਲ ਅੰਕ 37+13 = 50 ਹਨ।

Bachelor of Vocation (B.Voc.) FOOD PROCESSING SEMESTER – I
SESSION 2021-22
BVGC-102 C PUNJAB HISTORY & CULTURE

KHALSA COLLEGE AMRITSAR
(An Autonomous College)
Bachelor of Vocation (B.Voc.)Software Development, Theatre and Stage Craft, Food Processing, TextileDesign & Apparel Technology),
B. A., B.A. (SS), B. A. (Hons. – English), B. Com. (Hons., R, Ac. & Finance),
B. Sc.Agri./Bio-Tech./Comp. Sc./Eco./FD/Food Sc./IT/Med./NMed., B.Sc. (Hons. –
Agri./Botany, Chemistry, Mathematics, Physics, Zoology)/ B. of Mult., B. in Int. & Mob. Tech./BBA/BCA/BJMC/BPT-SEMESTER–I
PUNJAB HISTORY & CULTURE (From Earliest Times to
C 320)(Special Paper in lieu of Punjabi compulsory)
(For those students who are not domicile of Punjab)

Time: 3 Hours **Total. Marks: 50**
Theory: 37
Internal Assessment: 13

Instructions for the Paper Setter:
The question paper consists of five units: I, II, III, IV and V. Units I, II, III and IV will have two questions each. Each question carries 8 marks. The students are to attempt one question from each unit approximately in 800 words. Unit-V consists of 7 short answer type questions to be set from the entire syllabus. Students are to attempt any 5 questions in about 20 words each. Each question carries 1 mark.

Note: The examiner is to set the question paper in two languages: English & Hindi.

Unit-I

1. Physical features of the Punjab and impact on history.
2. Sources of the ancient history of Punjab.

Unit-II

3. Harappan Civilization: Town planning; social, economic and religious life of the Indus Valley People.
4. The Indo-Aryans: Original home and settlement in Punjab.

Unit-III

5. Social, Religious and Economic life during Rig Vedic Age.
6. Social, Religious and Economic life during later Vedic Age.

Unit-IV

7. Teachings and impact of Buddhism.
8. Jainism in the Punjab.

Suggested Readings:-

1. L. Joshi (ed), History and Culture of the Punjab, Art-I, Patiala, 1989 (3rd edition)
2. L.M. Joshi and Fauja Singh (ed), History of Punjab, Vol.I, Patiala 1977.
3. Budha Parkash, Glimpses of Ancient Punjab, Patiala, 1983.
4. B.N. Sharma, Life in Northern India, Delhi. 1966.

Bachelor of Vocation (B.Voc.) FOOD PROCESSING SEMESTER – I
SESSION 2021-22
BVGC-103 DA-1 DRUG ABUSE

B.Voc. Food Processing Semester - I
(DA1- Drug Abuse: Problem, Management and Prevention)

PROBLEM OF DRUG ABUSE

(Compulsory for all Under Graduate Classes)

Time: 3 Hours **Max. Marks: 50**

Instructions for the Paper Setters:
Section–A: (15 Marks): It will consist of five short answer type questions. Candidates will be required to attempt three questions, each question carrying 05 marks. Answer to any of the questions should not exceed two pages.
Section–B: (20 Marks) It will consist of four essay type questions. Candidates will be required to attempt two questions, each question carrying 10 marks. Answer to any of the questions should not exceed four pages.
Section–C: (15 Marks) It will consist of two questions. Candidate will be required to attempt one question only. Answer to the question should not exceed 5 pages.

UNIT–I

- **Meaning of Drug Abuse**

Meaning, Nature and Extent of Drug Abuse in India and Punjab.

UNIT-II

- **Consequences of Drug Abuse for:**

Individual : Education, Employment, Income.

Family : Violence.

Society : Crime.

Nation : Law and Order problem.

UNIT-III

- **Management of Drug Abuse**

Medical Management: Medication for treatment and to reduce withdrawal effects.

UNIT-IV

- Psychiatric Management: Counseling, Behavioral and Cognitive therapy.

- Social Management: Family, Group therapy and Environmental Intervention.

Books Recommended:

1. Ahuja, Ram (2003), Social Problems in India, Rawat Publication, Jaipur.
2. Extent, Pattern and Trend of Drug Use in India, Ministry of Social Justice and Empowerment, Government of India, 2004.
3. Inciardi, J.A. 1981. The Drug Crime Connection. Beverly Hills: Sage Publications. 23
4. Jasjit Kaur Randhawa & Samreet Randhawa, "Drug Abuse-Problem, Management & Prevention", KLS, ISBN No. 978-81-936570-6-5, (2018).
5. Jasjit Kaur Randhawa & Samreet Randhawa, "Drug Abuse Problem, Management & Prevention", KLS, ISBN No. 978-81-936570-8-9, (2019).
6. Jasjit Kaur Randhawa & Samreet Randhawa, "voZrI d[otos'A^(BPky'oh) ;wZf;nk, gqpzXBns/ o'eEkw", KLS, ISBN No. 978-81-936570-7-1, (2018).
7. Jasjit Kaur Randhawa, "Drug Abuse -Management & Prevention", KLS, ISBN No. 978-93-81278-80-2, (2018).
8. Kapoor. T. (1985) Drug epidemic among Indian Youth, New Delhi: Mittal Pub.
9. Modi, Ishwar and Modi, Shalini (1997) Drugs: Addiction and Prevention, Jaipur: Rawat Publication.
10. National Household Survey of Alcohol and Drug abuse. (2003) New Delhi, Clinical Epidemiological Unit, All India Institute of Medical Sciences, 2004.
11. Rama Gandotra & Jasjit Kaur Randhawa, "voZrI d[otos'A^(BPky'oh) gqpzXB ns/ o'eEkw",KLS, ISBN No. 978-93-81278-87-1, (2018).
12. Sain, Bhim 1991, Drug Addiction Alcoholism, Smoking obscenity New Delhi: Mittal Publications.
13. Sandhu, Ranvinder Singh, 2009, Drug Addiction in Punjab: A Sociological Study. Amritsar:Guru Nanak Dev University.
14. Singh, Chandra Paul 2000. Alcohol and Dependence among Industrial Workers: Delhi:Shipra.
15. Sussman, S and Ames, S.L. (2008). Drug Abuse: Concepts, Prevention and Cessation, Cambridge University Press.
16. World Drug Report 2010, United Nations office of Drug and Crime.
17. World Drug Report 2011, United Nations office of Drug and Crime.

Bachelor of Vocation (B.VOC.) FOOD PROCESSING SEMESTER – I

SESSION 2021-22

BVFP-104 FOOD PROCESSING AND PRESERVATION

Time: 3 Hours **Max. Marks: 60**

Theory Marks: 45

Internal Marks: 15

Instructions for the Paper Setters:

Theory: – Question paper will contain eight questions in all and students will be asked to attempt five questions. All questions will carry equal marks. Question no. 1 will be objective type and compulsory.

COURSE OBJECTIVES: Objective of this course is to impart knowledge about

- Discuss fundamental principles of food preservation
- Describe the principles of low temperature preservation by refrigeration, freezing and freeze drying
- CO3 Explain thermal processing and execute high temperature processing in food industry
- Explain the concept of water activity and preservation by Drying & Dehydration
- Implement the knowledge of preservatives and non-thermal technology in food preservation

Theory:

UNIT-I

Definition, scope and benefit of industrial food preservation**,**sources of food,Causes of qualitydeterioration of foods**,** Principles of Food Processing and Preservation.

UNIT-II

Thermal Processing Methods of preservation – Principles of Pasteurization and sterilization,canning and aseptic processing – definition and flowsheet diagram.

Preservation by low temperature – Principle ofRefrigeration and freezing,methods of freezing. Preservation by drying and dehydration– Principle, importance andmethods – cabinet drier,fluidized bed drier, spray drier, vacuum shelf drier, drum drier and freeze driers.

UNIT-III

Class-I and Class-II preservatives and their mode of action- Salt, sugar, acetic acid, sodiumbenzoate, potassium metabisulphite and potassium sorbate.

Microwave Processing– Properties, mechanism and working.

Irradiation:Sources, mechanism and effect on microorganisms.

Recent methods in Processing : Principle and effect on microorganism by Pulsed electric fieldprocessing, High pressure processing, Processing using ultrasound and ohmic heating.

Books Recommended:

1. Food Processing Technology. Principles and Practice. P J Fellows. A volume in Woodhead Publishing Series in Food Science, Technology and Nutrition Book,2017 Fourth Edition.
2. Food Science. Norman N. Potter. Edition, 5. Publisher, 2007, CBS Publishers & Distributors.
3. Physical Principles of Food Preservation.Marcus Karel, Owen R. Fennema, Daryl B. Lund. M.Dekker,1975Dekker Inc. New York. Vol II.
4. The technology of food preservation by N.W. Desrosier and J.N. Desrosier, CBSpublishing.

COURSE OUTCOMES: On successful completion of the subject, the students will be able to

CO1: Know about the basic concept of food preservation.

CO2: Understand factors affecting the shelf lives of commodities and different preservation techniques.

CO3: Be aware of the role of modern packaging techniques in food preservation.

CO4: Use Novel technologies for food preservation.

Bachelor of Vocation (B.VOC.) FOOD PROCESSING SEMESTER – I
SESSION 2021-22
BVFP-105 Food and Nutrition

Time: 3 Hours **Max. Marks: 60**
Theory Marks: 45
Internal Marks: 15

Instructions for the Paper Setters:
Theory: – Question paper will contain eight questions in all and students will be asked to attempt five questions. All questions will carry equal marks. Question no. 1 will be objective type and compulsory.

Theory:

UNIT I

Definitions: Food, Nutrition, Balanced diet and Malnutrition- Under nutrition & Over nutritionFunctions of Food, Five Food groups.
Functions of nutrients-Carbohydrates, Fats, Proteins, Vitamins, Minerals Water & Electrolytes- Functions, sources and their balance; Acid-base balanceDietary fibre- its functions and sources

UNIT II

Energy, Calorific value of food, Energy value of Carbohydrates, Fats & ProteinsBasal Metabolism Rate (BMR), Factors affecting BMR
RDA (Recommended daily allowances) for infants, children, Adults and Pregnant women.Meal Planning- Food Guide, Objectives in meal planning, Meal Planning process

UNIT III

Disorders of Nutrition: Protein-Energy Malnutrition (PEM), Marasmus & kwashiorkor Deficiencydiseases of vitamins-Night blindness, Beri-Beri, Pellagra, Scurvy and Rickets.
Deficiency diseases of minerals-Anaemia and goitre
Diet therapy - Normal hospital diet, Liquid and soft diets, Tube feeding.
Definitions of Obesity and BMI, under-weight, over-weight. Factors Responsible for Obesity,Dietary management during obesity and under-weight, Fad Diets

Books Recommended:

1. **Handbook of Food and Nutrition**: by M. Swami Nathan Vol. I, II.2012,Banglore Printing andPublishing.
2. Nutrition and Dietetics by Shubhangini A. Joshi. 1995, McGraw Hill Education (India) Pvt.Ltd, New Delhi.
3. Fundamentals of Foods, Nutrition and Diet Therapy by S.R. Mudambi& M.V. Rajagopal,2012 New Age International Pvt. Ltd. Publishers. New Delhi.

Bachelor of Vocation (B.Voc.) FOOD PROCESSING SEMESTER – I

SESSION 2021-22

BVFP-106 FRUITS AND VEGETABLE PROCESSING

Time: 3 Hours **Max. Marks: 60**

Theory Marks: 45

Internal Marks: 15

Instructions for the Paper Setters:

Theory: – Question paper will contain eight questions in all and students will be asked to attempt five questions. All questions will carry equal marks. Question no. 1 will be objective type and compulsory.

Theory:

UNIT-I

Chemical composition and nutritive value of fruits and vegetables,Storage practices: Modified & Controlled atmospheric storage, hypobaric storage, cool store.

concept of Primary processing: grading, sorting, cleaning, washing, peeling, slicing andblanching. Processing of fruit juices and beverages - RTS, Squash, crush and fruit juice concentrates.

UNIT-II

Canning of fruits and vegetables – Basic requirements, process and machinery.

Processingof Jam, jelly, preserve, candied, glazed fruits and pickles- Basic requirements,process and machinery.

UNIT-III

Processing of potatoes – chips, wedges and dried flakes.

Processing techniques of tomatoes – Juice, puree, paste and ketchup. Drying/Dehydration and freezing of fruits and vegetables: Principle and methods.

Books Recommended:

1. Handbook of Analysis of Fruits and Vegetable Products by S. Rangana, Tata McGraw Hill,New Delhi, 1986.
2. Preservation of Fruits and Vegetables byLal G, Siddapa GS & Tandon GL.1986. ICAR.
3. Storage, Processing and Nutritional Quality of Fruits and Vegetables. Vol. I. Fruits and Vegetables by Salunkhe DK, Bolia HR & Reddy NR. 1991. CRC Press.
4. Post Harvest Technology of Fruits and Vegetables by Verma LR. & Joshi VK. 2000. IndusPubl.

Bachelor of Vocation (B.Voc.) FOOD PROCESSING SEMESTER – I

SESSION 2021-22

BVFP-107 EXPERIMENTS IN FOOD PROCESSING AND PRESERVATION

Time: 3 Hours **Max. Marks: 40**

Practical Marks: 30

Internal Marks: 10

Instructions for the Paper Setters:

Practical – Question Paper will be set with the mutual consent of Internal and External Examiners on the spot.

1. Demonstration of various machineries used in food processing.
2. Demonstration of various perishable food items and degree of spoilage.
3. Blanching of selected food items.
4. To study the effectiveness of pasteurization.
5. To study the Pasteurization of milk by microwave technique.
6. To study the effect of browning on raw fruits & vegetables.
7. Preservation of food by concentration.
8. To perform cut out analysis of canned product.
9. Preservation of food by using chemical preservatives.
10. To study different methods of food processing i.e. by heat & drying in tray drier on agiven food sample.
11. Demonstration of preserving foods under cold v/s freezing process.
12. Visit to any Food Processing Industry.

Books Recommended:

1. Handbook of Analysis and Quality Control for Fruit and Vegetable Products by SRanganna, 1986, Tata Mc Graw Hill Education.
2. Food Science Experiments and Applications by M. Sethi, 2019, CBS Publishers & Distributors.

Bachelor of Vocation (B.Voc.) FOOD PROCESSING SEMESTER – I
SESSION 2021-22
BVFP-108 Experiments in Food and Nutrition

Time: 3 Hours **Max. Marks: 40**
Practical Marks: 30
Internal Marks: 10

Instructions for the Paper Setters:
Practical – Question Paper will be set with the mutual consent of Internal and ExternalExaminers on the spot.

Practicals:

1. Identification of food sources for various nutrients.
2. Identification of five-food groups
3. Calorific value of food
4. Calculation of BMI
5. Calculation of BMR
6. Evaluation of own diet.
7. Diet planning of a normal adult
8. Planning of diet for obese and overweight people
9. Planning of diet for Under-weight people.

Books Recommended:

1. Fundamentals of Foods, Nutrition and Diet Therapy by S.R. Mudambi& M.V. Rajagopal,2012 New Age International Pvt. Ltd. Publishers. New Delhi.

Bachelor of Vocation (B.Voc.) FOOD PROCESSING SEMESTER – I

SESSION 2021-22

BVFP-109 Experiments in Fruits and Vegetable Processing

Time: 3 Hours **Max. Marks: 40**

Practical Marks: 30

Internal Marks: 10

Instructions for the Paper Setters:

Practical – Question Paper will be set with the mutual consent of Internal and External Examiners on the spot.

1. Extraction and preservation of Fruit Juices.
2. Preparation of fruit jam and jellies
3. Preparation of RTS and squash from fruit juices.
4. To prepare different types of pickles (sweet & sour).
5. Drying by different methods of fruits and vegetables.
6. Preparation of tomato ketchup, sauce & chutney.
7. Preparation of potato chips, finger chips.
8. Preparation of preserve and candied fruits and vegetables.
9. Organoleptic evaluation of fruit & vegetable products.
10. Determination of total soluble solids by refractrometer.
11. Determination of Brix : Acid ratio of fruits and vegetable products.
12. To study the estimation of pigments in fruits and vegetables by using spectrophotometer.
13. Visit to a fruits and vegetable Processing Industry.

Books Recommended:

3. Handbook of Analysis and Quality Control for Fruit and Vegetable Products by S Ranganna,1986 Tata Mc Graw Hill Education.

4. Food Science Experiments and Applications by M. Sethi, 2019, CBS Publishers & Distributors.

Bachelor of Vocation (B.Voc.) FOOD PROCESSING SEMESTER – II
SESSION 2021-22
BVGC-201COMMUNICATIONSKILLS IN ENGLISH–II

SESSION 2021-22
Bachelor of Vocation (B.Voc.)
(Software Development, Theatre and Stage Craft, Food Processing, Textile Design & Apparel Technology)
Semester – II

PAPER – BVGC 201: COMMUNICATION SKILLS IN ENGLISH–IIPAPER – BVGC 201: COMMUNICATION SKILLS IN ENGLISH–II

Time: 3 Hours **Max. Marks: 50**
Theory Marks: 25
Practical Marks: 12
Assessment: 13
Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the fourSections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates arerequired to attempt five questions, selecting at least one question from each Section. The fifthquestion may be attempted from any Section. (5X5=25 Marks)

Course Contents:

SECTION–A
Listening Skills: Barriers to listening; effective listening skills.
Activities: Listening exercises- News and TV reports SECTION–B
Attending telephone calls; notemaking.
Activities: Taking notes on a speech/lecture
SECTION–C
Speaking and Conversational Skills: Components of a meaningful and easy conversation; understanding the cue and making appropriate responses; forms of polite speech; asking and providing information on general topics.

Activities: 1) Making conversation and taking turns
2) Oral description or explanation of a common object, situation or concept
SECTION–D
Situation based Conversation inEnglish, Essentials of Spoken English

Activities: GivingInterviews

Recommended Books:
- *Oxford Guide to Effective Writing and Speaking* by John Seely.
- *English Grammar in Use* (Fourth Edition) by Raymond Murphy, CUP14

SESSION 2021-22
Bachelor of Vocation (B.Voc.)
(Software Development, Theatre and Stage Craft, Food Processing, Textile Design & Apparel Technology)
Semester – II

Practical Marks: 12

Course Contents:-

3. Oral Presentation with/without audio visualaids.
4. GroupDiscussion.
5. Listening to any recorded or live material and asking oral questions for listening comprehension.

Questions:-

3. Oral Presentation will be of 5 to 10 minutes duration (Topic can be given in advance oritcanbe student's own choice). Use of audio visual aids is desirable.
4. Group discussion comprising 8 to 10 students on a familiar topic. Time for eachgroup will be 15 to 20minutes.

Note: Oral test will be conducted by external examiner with the help of internal examiner.

B.Sc. (Hons. – Physics, Chemistry, Mathematics),

B.Sc. Bio-Tech./IT/Fashion Designing/Food Sc./BCA, BA-JMC/ B.Sc. in Computational Statistics and Data Analytics, B.Voc. (Software Development, Theatre and Stage Craft, Food Processing, Textile Design & Apparel Technology)

SEMESTER-I

ਮੁੱਢਲੀ ਪੰਜਾਬੀ

(In Lieu of Compulsory Punjabi)

ਸਮਾਂ : 3 ਘੰਟੇ

ਥਿਊਰੀ ਅੰਕ : 37
ਇੰਟਰਨਲ ਅਸੈੱਸਮੈਂਟ : 13
ਕੁੱਲ ਅੰਕ : 50

ਪਾਠ-ਕ੍ਰਮ

ਭਾਗ-ਪਹਿਲਾ

ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਤੇ ਗੁਰਮੁਖੀ ਲਿਪੀ :

(ੳ) ਨਾਮਕਰਣ ਤੇ ਸੰਖੇਪ ਜਾਣ-ਪਛਾਣ : ਗੁਰਮੁਖੀ ਵਰਣਮਾਲਾ, ਅੱਖਰ ਕ੍ਰਮ, ਸਵਰ ਵਾਹਕ (ੳ, ਅ, ੲ), ਲਗਾਂ-ਮਾਤਰਾਂ, ਪੈਰ ਵਿਚ ਬਿੰਦੀ ਵਾਲੇ ਵਰਣ, ਪੈਰ ਵਿਚ ਪੈਣ ਵਾਲੇ ਵਰਣ, ਬਿੰਦੀ, ਟਿੱਪੀ, ਅੱਧਕ

(ਅ) ਸਿਖਲਾਈ ਤੇ ਅਭਿਆਸ

ਭਾਗ-ਦੂਜਾ

ਗੁਰਮੁਖੀ ਆਰਥੋਗਰਾਫੀ ਅਤੇ ਉਚਾਰਨ :

ਸਵਰ, ਵਿਅੰਜਨ : ਮੁੱਢਲੀ ਜਾਣ-ਪਛਾਣ ਅਤੇ ਉਚਾਰਣ, ਮੁਹਾਰਨੀ, ਲਗਾਂ-ਮਾਤਰਾਂ ਦੀ ਪਛਾਣ

ਭਾਗ-ਤੀਜਾ

ਪੰਜਾਬੀ ਸ਼ਬਦ-ਜੋੜ :

ਮੁਕਤਾ (ਦੋ ਅੱਖਰਾਂ ਵਾਲੇ ਸ਼ਬਦ, ਤਿੰਨ ਅੱਖਰਾਂ ਵਾਲੇ ਸ਼ਬਦ), ਸਿਹਾਰੀ ਵਾਲੇ ਸ਼ਬਦ, ਬਿਹਾਰੀ ਵਾਲੇ ਸ਼ਬਦ, ਔਂਕੜ ਵਾਲੇ ਸ਼ਬਦ, ਦੁਲੈਂਕੜ ਵਾਲੇ ਸ਼ਬਦ, ਲਾਂ ਵਾਲੇ ਸ਼ਬਦ, ਦੁਲਾਵਾਂ ਵਾਲੇ ਸ਼ਬਦ, ਹੋੜੇ ਵਾਲੇ ਸ਼ਬਦ, ਕਨੌੜੇ ਵਾਲੇ ਸ਼ਬਦ, ਲਗਾਖਰ (ਬਿੰਦੀ, ਟਿੱਪੀ, ਅੱਧਕ) ਵਾਲੇ ਸ਼ਬਦ

ਭਾਗ-ਚੌਥਾ

ਸ਼ੁੱਧ-ਅਸ਼ੁੱਧ ਸ਼ਬਦ

ਅੰਕ-ਵੰਡ ਅਤੇ ਪ੍ਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

1. ਪਹਿਲੇ ਭਾਗ ਵਿਚੋਂ ਚਾਰ ਵਰਣਨਾਤਮਕ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ ਜਿਨ੍ਹਾਂ ਵਿਚੋਂ ਤਿੰਨ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਉੱਤਰ ਦੇਣਾ ਲਾਜ਼ਮੀ ਹੈ। ਹਰ ਪ੍ਰਸ਼ਨ ਦੇ ਚਾਰ-ਚਾਰ ਅੰਕ ਹਨ। **(3x4)=12 ਅੰਕ**
2. ਭਾਗ ਦੂਸਰਾ ਵਿਚੋਂ ਦੋ-ਦੋ ਅੰਕ ਦੇ ਪੰਜ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ। ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਲਾਜ਼ਮੀ ਹਨ। **(5x2)=10 ਅੰਕ**
3. ਭਾਗ ਤੀਸਰਾ ਵਿਚੋਂ ਤਿੰਨ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ ਜਿਨ੍ਹਾਂ ਵਿਚੋਂ ਦੋ ਪ੍ਰਸ਼ਨ ਹੱਲ ਕਰਨੇ ਲਾਜ਼ਮੀ ਹਨ। ਇਨ੍ਹਾਂ ਦੇ ਪੰਜ-ਪੰਜ ਅੰਕ ਹਨ। **(2x5)=10 ਅੰਕ**
4. ਭਾਗ ਚੌਥਾ ਵਿਚ ਪੰਜ ਅਸ਼ੁੱਧ ਸ਼ਬਦਾਂ ਨੂੰ ਸ਼ੁੱਧ ਕਰਕੇ ਲਿਖਣਾ ਹੋਵੇਗਾ। **(5x1)=05 ਅੰਕ**

ਨੋਟ: ਇੰਟਰਨਲ ਅਸੈੱਸਮੈਂਟ 13 ਅੰਕਾਂ ਦੀ ਹੈ, ਜੋ ਕਾਲਜ ਵੱਲੋਂ ਨਿਰਧਾਰਿਤ ਦਿਸ਼ਾ ਨਿਰਦੇਸ਼ਾਂ ਅਨੁਸਾਰ ਇਨ੍ਹਾਂ ਅੰਕਾਂ ਤੋਂ ਵੱਖਰੀ ਹੋਵੇਗੀ। ਇਸ ਪੇਪਰ ਦੇ ਕੁਲ ਅੰਕ 37+13 = 50 ਹਨ।

B.Sc. (Hons. – Physics, Chemistry, Mathematics), B.Sc. Bio-Tech./IT/Fashion Designing/Food Sc./BCA, BA-JMC/ B.Sc. in Computational Statistics and Data Analytics, B.Voc. (Software Development, Theatre and Stage Craft, Food Processing, Textile Design & Apparel Technology)

SEMESTER-II
ਲਾਜ਼ਮੀ ਪੰਜਾਬੀ

ਸਮਾਂ : 3 ਘੰਟੇ

ਥਿਊਰੀ ਅੰਕ : 37
ਇੰਟਰਨਲ ਅਸੈੱਸਮੈਂਟ : 13
ਕੁੱਲ ਅੰਕ : 50

ਪਾਠ-ਕ੍ਰਮ

ਭਾਗ-ਪਹਿਲਾ

ਸਾਹਿਤ ਦੇ ਰੰਗ (ਭਾਗ ਦੂਜਾ - ਵਾਰਤਕ ਅਤੇ ਰੇਖਾ-ਚਿੱਤਰ)
ਡਾ. ਮਹਿਲ ਸਿੰਘ (ਸੰਪਾ.), ਰਵੀ ਸਾਹਿਤ ਪ੍ਰਕਾਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।
(ਕਿਸੇ ਲੇਖ ਅਤੇ ਰੇਖਾ-ਚਿੱਤਰ ਦਾ ਸਾਰ/ਵਿਸ਼ਾ-ਵਸਤੂ/ਨਾਇਕ ਬਿੰਬ)

ਭਾਗ-ਦੂਜਾ

ਇਤਿਹਾਸਿਕ ਯਾਦਾਂ
ਸ. ਸ. ਅਮੋਲ (ਸੰਪਾ.), ਪੰਜਾਬੀ ਸਾਹਿਤ ਪ੍ਰਕਾਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।
(ਨਿਬੰਧ 7 ਤੋਂ 12 ਤਕ ਸਾਰ/ ਵਿਸ਼ਾ-ਵਸਤੂ/ਸ਼ੈਲੀ)

ਭਾਗ-ਤੀਜਾ

(ੳ) ਸ਼ਬਦ-ਬਣਤਰ ਅਤੇ ਸ਼ਬਦ-ਰਚਨਾ - ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਮੁੱਢਲੇ ਸੰਕਲਪ
(ਅ) ਸ਼ਬਦ-ਸ਼੍ਰੇਣੀਆਂ

ਭਾਗ-ਚੌਥਾ

(ੳ) ਦਫ਼ਤਰੀ ਚਿੱਠੀ ਪੱਤਰ
(ਅ) ਮੁਹਾਵਰੇ ਅਤੇ ਅਖਾਣ

ਅੰਕ-ਵੰਡ ਅਤੇ ਪ੍ਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

1. ਸਿਲੇਬਸ ਦੇ ਚਾਰ ਭਾਗ ਹਨ ਪਰ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੇ ਪੰਜ ਭਾਗ ਹੋਣਗੇ।
2. ਪਹਿਲੇ ਚਾਰ ਭਾਗਾਂ ਵਿਚ 02-02 ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ। ਹਰੇਕ ਭਾਗ ਵਿਚੋਂ 01-01 ਪ੍ਰਸ਼ਨ ਕਰਨਾ ਲਾਜ਼ਮੀ ਹੋਵੇਗਾ। ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ ਬਰਾਬਰ (08) ਅੰਕ ਹੋਣਗੇ।
3. ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਦੇ ਪੰਜਵੇਂ ਭਾਗ ਵਿਚ ਸਾਰੇ ਸਿਲੇਬਸ ਵਿਚੋਂ 01-01 ਅੰਕ ਦੇ ਛੇ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ, ਜਿਨ੍ਹਾਂ ਵਿਚੋਂ 05 ਪ੍ਰਸ਼ਨਾਂ ਦੇ ਉੱਤਰ ਦੇਣਾ ਲਾਜ਼ਮੀ ਹੋਵੇਗਾ।
4. ਪੇਪਰ ਸੈੱਟ ਕਰਨ ਵਾਲਾ ਜੇਕਰ ਚਾਹੇ ਤਾਂ ਪ੍ਰਸ਼ਨਾਂ ਦੀ ਵੰਡ ਅੱਗੋਂ ਵੱਧ ਤੋਂ ਵੱਧ ਚਾਰ ਉਪ-ਪ੍ਰਸ਼ਨਾਂ ਵਿਚ ਕਰ ਸਕਦਾ ਹੈ।

ਨੋਟ : ਇੰਟਰਨਲ ਅਸੈੱਸਮੈਂਟ 13 ਅੰਕਾਂ ਦੀ ਹੈ, ਜੋ ਕਾਲਜ ਵੱਲੋਂ ਨਿਰਧਾਰਿਤ ਦਿਸ਼ਾ ਨਿਰਦੇਸ਼ਾਂ ਅਨੁਸਾਰ ਇਨ੍ਹਾਂ ਅੰਕਾਂ ਤੋਂ ਵੱਖਰੀ ਹੋਵੇਗੀ। ਇਸ ਪੇਪਰ ਦੇ ਕੁੱਲ ਅੰਕ 37+13 = 50 ਹਨ।

B.Sc. (Hons. – Physics, Chemistry, Mathematics), B.Sc. Bio-Tech./IT/Fashion Designing/Food Sc./BCA, BA-JMC/ B.Sc. in Computational Statistics and Data Analytics, B.Voc. (Software Development, Theatre and Stage Craft, Food Processing, Textile Design & Apparel Technology)

SEMESTER-II
ਮੁੱਢਲੀ ਪੰਜਾਬੀ
(In Lieu of Compulsory Punjabi)

ਸਮਾਂ : 3 ਘੰਟੇ

ਥਿਊਰੀ ਅੰਕ : 37
ਇੰਟਰਨਲ ਅਸੈੱਸਮੈਂਟ : 13
ਕੁੱਲ ਅੰਕ : 50

ਪਾਠ-ਕ੍ਰਮ

ਭਾਗ-ਪਹਿਲਾ

ਪੰਜਾਬੀ ਸ਼ਬਦ-ਬਣਤਰ :

ਧਾਤੂ, ਵਧੇਤਰ (ਅਗੇਤਰ, ਮਧੇਤਰ, ਪਿਛੇਤਰ), ਪੰਜਾਬੀ ਕੋਸ਼ਗਤ ਸ਼ਬਦ ਅਤੇ ਵਿਆਕਰਨਕ ਸ਼ਬਦ

ਭਾਗ-ਦੂਜਾ

ਪੰਜਾਬੀ ਸ਼ਬਦ-ਪ੍ਰਕਾਰ :

(ੳ) ਸੰਯੁਕਤ ਸ਼ਬਦ, ਸਮਾਸੀ ਸ਼ਬਦ, ਦੋਜਾਤੀ ਸ਼ਬਦ, ਦੋਹਰੇ/ਦੁਹਰੁਕਤੀ ਸ਼ਬਦ ਅਤੇ ਮਿਸ਼ਰਤ ਸ਼ਬਦ।
(ਅ) ਸਿਖਲਾਈ ਤੇ ਅਭਿਆਸ

ਭਾਗ-ਤੀਜਾ

ਪੰਜਾਬੀ ਸ਼ਬਦ-ਰਚਨਾ :

ਇਕ-ਵਚਨ/ਬਹੁ-ਵਚਨ, ਲਿੰਗ-ਪੁਲਿੰਗ, ਬਹੁਅਰਥਕ ਸ਼ਬਦ, ਸਮਾਨਅਰਥਕ ਸ਼ਬਦ, ਬਹੁਤੇ ਸ਼ਬਦਾਂ ਲਈ ਇਕ ਸ਼ਬਦ, ਸ਼ਬਦ ਜੁੱਟ, ਵਿਰੋਧਅਰਥਕ ਸ਼ਬਦ, ਸਮਨਾਮੀ ਸ਼ਬਦ

ਭਾਗ-ਚੌਥਾ

ਨਿੱਤ ਵਰਤੋਂ ਦੀ ਪੰਜਾਬੀ ਸ਼ਬਦਾਵਲੀ :

ਖਾਣ-ਪੀਣ, ਸਾਕਾਦਾਰੀ, ਰੁੱਤਾਂ, ਮਹੀਨਿਆਂ, ਗਿਣਤੀ, ਮੌਸਮ, ਬਾਜ਼ਾਰ, ਵਪਾਰ, ਧੰਦਿਆਂ ਨਾਲ ਸੰਬੰਧਿਤ

ਅੰਕ-ਵੰਡ ਅਤੇ ਪ੍ਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

1. ਭਾਗ ਪਹਿਲਾ ਵਿਚੋਂ ਚਾਰ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ ਜਿਨ੍ਹਾਂ ਵਿਚੋਂ ਤਿੰਨ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਉੱਤਰ ਦੇਣੇ ਲਾਜ਼ਮੀ ਹਨ। ਹਰ ਪ੍ਰਸ਼ਨ ਦੇ ਚਾਰ-ਚਾਰ ਅੰਕ ਹਨ । **(3x4)=12 ਅੰਕ**
2. ਭਾਗ ਦੂਸਰਾ ਵਿਚੋਂ ਦੋ-ਦੋ ਅੰਕ ਦੇ ਪੰਜ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ। ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਲਾਜ਼ਮੀ ਹਨ। **(5x2)=10 ਅੰਕ**
3. ਭਾਗ ਤੀਸਰਾ ਵਿਚੋਂ ਚਾਰ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ ਜਿਨ੍ਹਾਂ ਵਿਚੋਂ ਦੋ ਪ੍ਰਸ਼ਨ ਹੱਲ ਕਰਨੇ ਲਾਜ਼ਮੀ ਹਨ। **(2x5)=10 ਅੰਕ**
4. ਭਾਗ ਚੌਥਾ ਵਿਚੋਂ ਦੋ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ ਜਿਨ੍ਹਾਂ ਵਿਚੋਂ ਇਕ ਪ੍ਰਸ਼ਨ ਹੱਲ ਕਰਨਾ ਹੋਵੇਗਾ। **(1x5)=05 ਅੰਕ**

ਨੋਟ: ਇੰਟਰਨਲ ਅਸੈੱਸਮੈਂਟ 13 ਅੰਕਾਂ ਦੀ ਹੈ, ਜੋ ਕਾਲਜ ਵੱਲੋਂ ਨਿਰਧਾਰਿਤ ਦਿਸ਼ਾ ਨਿਰਦੇਸ਼ਾਂ ਅਨੁਸਾਰ ਇਨ੍ਹਾਂ ਅੰਕਾਂ ਤੋਂ ਵੱਖਰੀ ਹੋਵੇਗੀ। ਇਸ ਪੇਪਰ ਦੇ ਕੁਲ ਅੰਕ 37+13 = 50 ਹਨ।

Bachelor of Vocation (B.Voc.) FOOD PROCESSING SEMESTER – II
SESSION 2021-22
BVGC-202 C PUNJAB HISTORY & CULTURE

KHALSA COLLEGE AMRITSAR
(An Autonomous College)
Bachelor of Vocation (B.Voc.)Software Development, Theatre and Stage Craft, Food Processing, TextileDesign & Apparel Technology),
B. A., B.A. (SS), B. A. (Hons. – English), B. Com. (Hons., R, Ac. & Finance), B. Sc. Agri./Bio-Tech./Comp. Sc./Eco./FD/Food Sc./IT/Med./NMed., B.Sc. (Hons. – Agri.,Botany, Chemistry, Mathematics, Physics, Zoology)/ B. of Mult., B. in Int. & Mob.
Tech./BBA/BCA/BJMC/BPT- SEMESTER– II PUNJAB HISTORY & CULTURE (C 321 TO 1000 A.D.)
(Special Paper in lieu of Punjabi compulsory)
(For those students who are not domicile of Punjab)

Time: 3 Hours **Total. Marks: 50**
Theory: 37
Internal Assessment: 13

Instructions for the Paper Setter:
The question paper consists of five units: I, II, III, IV and V. Units I, II, III and IV will have two questions each. Each question carries 8 marks. The students are to attempt one question from each unit approximately in 800 words. Unit-V consists of 7 short answer type questions to be set from the entire syllabus. Students are to attempt any 5 questions in about 20 words each. Each question carries 1 mark.
Note: The examiner is to set the question paper in two languages: English & Hindi.

Unit-I

1. Punjab under Chandragupta Maurya and Ashoka.
2. The Kushans and their Contribution to the Punjab.

Unit-II

3. The Punjab under the Gupta Emperors.
4. The Punjab under the Vardhana Emperors

Unit-III

5. Political Developments 7th Century to 1000 A.D.
6. Socio-cultural History of Punjab from 7th Century to 1000 A.D.

Unit-IV

7. Development of languages and Literature.
8. Development of art & Architecture.

Suggested Readings:-

1. L. Joshi (ed), History and Culture of the Punjab, Part-I, Patiala, 1989 (3rd edition)
2. L.M. Joshi and Fauja Singh (ed), History of Punjab, Vol.I, Patiala 1977.
3. Budha Parkash, Glimpses of Ancient Punjab, Patiala, 1983.
4. B.N. Sharma, Life in Northern India, Delhi. 1966.

Bachelor of Vocation (B.Voc.) FOOD PROCESSING SEMESTER – II
SESSION 2021-22
BVGC-203 DA-II DRUG ABUSE

SEMESTER–II
DA2- DRUG ABUSE: PROBLEM, MANAGEMENT AND PREVENTIONDRUG ABUSE: MANAGEMENT AND PREVENTION
(Compulsory for all Under Graduate Classes)

Time: 3 Hours **Total Marks: 50**

Instructions for the Paper Setters:
Section–A: (15 Marks): It will consist of five short answer type questions. Candidates will be required to attempt three questions, each question carrying 05 marks. Answer to any of thequestions should not exceed two pages.
Section–B: (20 Marks) It will consist of four essay type questions. Candidates will be required to attempt two questions, each question carrying 10 marks. Answer to any of the questions shouldnot exceed four pages.
Section–C: (15 Marks) It will consist of two questions. Candidate will be required to attempt one question only. Answer to the question should not exceed 5 pages.

UNIT-I

- **Prevention of Drug abuse**

Role of family: Parent child relationship, Family support, Supervision, Shaping values, ActiveScrutiny.

UNIT-II

- School: Counseling, Teacher as role-model. Parent-teacher-Health Professional Coordination, Random testing on students.

UNIT-III

- **Controlling Drug Abuse**

Media: Restraint on advertisements of drugs, advertisements on bad effects of drugs, Publicityand media, Campaigns against drug abuse, Educational and awareness program

UNIT-IV

- Legislation: NDPs act, Statutory warnings, Policing of Borders, Checking Supply/Smuggling of Drugs, Strict enforcement of laws, Time bound trials.

Books Recommended:

1. Extent, Pattern and Trend of Drug Use in India, Ministry of Social Justice and Empowerment, Government of India, 2004.
2. Gandotra, R. and Randhawa, J.K. 2018. voZrI d[otos'A (BPky'oh) gqpzXB ns o'eEkw. KasturiLal & Sons, Educational Publishers, Amritsar- Jalandhar.
3. Inciardi, J.A. 1981. The Drug Crime Connection. Beverly Hills: Sage Publications.
4. Modi, Ishwar and Modi, Shalini (1997) Drugs: Addiction and Prevention, Jaipur: Rawat Publication.
5. Randhawa, J.K. and Randhawa, Samreet 2018. Drug Abuse-Management and Prevention. Kasturi Lal & Sons, Educational Publishers, Amritsar- Jalandhar.
6. Sain, Bhim 1991, Drug Addiction Alcoholism, Smoking obscenity New Delhi: Mittal Publications.
7. Sandhu, Ranvinder Singh, 2009, Drug Addiction in Punjab: A Sociological Study. Amritsar:Guru Nanak Dev University.
8. Singh, Chandra Paul 2000. Alcohol and Dependence among Industrial Workers: Delhi: Shipra.
9. World Drug Report 2011, United Nations office of Drug and Crime.
10. World Drug Report 2010, United Nations office of Drug and Crime

Course Outcomes:

The students will be able to:

CO-1.	Understand the importance of family and its role in drug abuse prevention.
CO-2.	Understand the role of support system especially in schools and inter-relationships between students, parents and teachers.
CO-3.	Understand impact of media on substance abuse prevention.
CO-4.	Understand the role of awareness drives, campaigns etc. in drug abuse management.
CO-5	Learn about the Legislations and Acts governing drug trafficking and Abuse in India.

Bachelor of Vocation (B.Voc.) FOOD PROCESSING SEMESTER – II

SESSION 2021-22

BVFP-204: Food Chemistry

Time: 3 Hours **Max. Marks: 60**

Theory Marks: 45

Internal Marks: 15

Instructions for the Paper Setters:

Theory: – Question paper will contain eight questions in all and students will be asked to attempt five questions. All questions will carry equal marks. Question no. 1 will be objectivetype and compulsory.

COURSE OBJECTIVES:

Objective of this course is to :

- Explain the Classification the food components.
- Explain about chemical composition and structure of constituents of food and their functions in foods.
- Describe physicochemical aspects of food constituents and their interaction with food
- Evaluate the effect of processing on different food products.
- Define the role of enzymes and identify the application of enzymes in different food industry.

Theory:

UNIT I

Introduction- Water in foods, structure and its properties. Water activity, free and boundmoisture.

Carbohydrates: Introduction, sources, classification and structure.Functional properties of sugars and polysaccharides in foods, chemical reactions of carbohydrates-Hydrolysis, Enolization, Mutarotation, Dehydration, Browning reactions, Gelatinization and Retrogradation of starch.

Proteins: types-essential and non-essential amino acids, classification, common food proteins, Biological valence (BV) of some food proteins, Functional properties of proteins, Hydrolysis of proteins, Denaturation, renaturation and Gelation

UNIT – II

Lipids: Classification**,** Physical characteristics of lipids, chemical properties of fats -hydrolysis, oxidation and hydrogenation. Rancidity and its mechanism. Common edible fats, oils and emulsions. Lipids of biological importance like cholesterol and phospholipids, functional properties of lipids. Effect of processing on lipids.

UNIT – III

Enzymes: Nomenclature, Definition, mechanism of enzyme action, factors affecting enzymeaction, Enzyme inhibition, importance of enzymes in food processing

Books Recommended:

1. Food Chemistry by L. H. Mayer. 2004. CBS Publishers.

2.Handbook of Analysis and Quality Control for Fruit and Vegetable Products by S Ranganna,Tata Mc Graw Hill Education, 1986.

2. Food Chemistry by Fennemma. 2007. CRC Press.

COURSE OUTCOMES:

On successful completion of the subject, the students will be able to:

CO1: Understand the chemistry underlying the properties and reactions of various food components.

CO2: Understand the structure, classification and functional properties of food components.

CO3: Understand the chemical changes that takes place with food components during processing and storage and their effects on sensory and nutritional quality and functional properties of foods.

CO4: Understand the chemistry underlying the properties and reactions of various food components

Bachelor of Vocation (B.Voc.) FOOD PROCESSING SEMESTER – II

SESSION 2021-22

BVFP-205 FOOD HYGIENE AND SANITATION

Time: 3 Hours **Max. Marks: 60**

Theory Marks: 45

Internal Marks: 15

Instructions for the Paper Setters:

Theory: – Question paper will contain eight questions in all and students will be asked to attempt five questions. All questions will carry equal marks. Question no. 1 will be objective type and compulsory.

COURSE OBJECTIVES:

Objective of this course is to:

- Understand the principle of hygiene and its relation to food preparation.
- Acquire knowledge regarding sanitation facilities and procedures in food plant operations.
- Basic knowledge of solid and liquid waste management and treatment
- Basic understanding of mode of action of detergents and sanitizers
- Discuss the concept of GMP, HACCP, quality culture etc.,
- The design of plant and processing equipment and the basics of contamination and sanitation in food plant.

Theory:

UNIT-I

General principles of hygiene and its relation to food preparation, Personal hygiene, Food handling habits, General hygienic and sanitary practices to be followed by different food business operators - fruits and vegetable, milk and milk product, meat and meat product, catering etc.

UNIT-II

Good Manufacturing Practices, Good Laboratory Practices, Quality Circles and Quality CultureConcept. Introduction to FSSAI. Basic concept of HACCP.

Sanitation facilities and procedures in food plant operation. Methods of cleaning and disinfection. Detergents and Sanitizer.

UNIT-III

Water quality - water standards and analysis of physical, chemical and microbiological characteristics of water. Waste treatment - fundamentals of physical, biological & chemical waste treatments.

Books Recommended:

1. Guide to improving Food Hygiene - Ed Gaston and Tiffney.

2. Practical Food Microbiology and Technology (2nd edition) – J. Mountney and W.A. Gould,1988. AVI Books.

3. Food Poisoning and Food Hygiene - Betty C. Hobbs (3rd Edition). Hodder & Stoughton Educational. UK.

COURSE OUTCOMES: On successful completion of the subject, the students will be able to:

CO1: Understand the basic principles and types of cleaning and disinfection in food processing plant.

CO2: Understand the concept of waste product handling and its management.

CO3: Understand the basic principles of safe and hygienic storage of foods

CO4: Get the basic knowledge of solid and liquid waste management and treatment

Bachelor of Vocation (B.Voc.) FOOD PROCESSING SEMESTER – II

SESSION 2021-22

BVFP-206: Cereal Milling Technology

Time: 3 Hours **Max. Marks: 60**

Theory Marks: 45

Internal Marks: 15

Instructions for the Paper Setters:

Theory: – Question paper will contain eight questions in all and students will be asked to attempt five questions. All questions will carry equal marks. Question no. 1 will be objectivetype and compulsory.

COURSE OBJECTIVES:

Objective of this course is to impart knowledge about

- Composition, structure and storage of food grains
- Technology of paddy processing and its products
- Traditional and modern milling operations of wheat and technology of bakery products
- Milling of pulses.
- Effect of antinutritional factors present in pulses

Theory:

UNIT-I

Cereal grain definition and different types of grains.
Structure and chemical composition of wheat, rice and maize.

UNIT-II

Pre-processing of grains: Cleaning, conditioning and tempering of grainsTraditional and modern milling of wheat and flour extraction rate.
Wheat flour for various purposes- Bread flour, Biscuit or cookie flour, cake flour, self-raising flour, instantized or agglomerated flour. Improvers and Bleachers - their principle and action.Traditional and modern milling of paddy.
Dry and wet milling of maize.

UNIT-III

Introduction and chemical composition of pulses.Decortication and milling of pulses.
Anti-nutritional factors of pulses and their elimination.

Books Recommended:

1. Technology of Cereals by Kent N. L. and Evers AD, 4th Ed., 1983, Woodhead PublishingLtd., UK.
2. Principle of Cereal Science & Technology by Kent. NL, 1983, Pergamon Press, London,UK.
3. The Chemistry & Technology of Cereal as Food & Feed by Maiz S.A, 1996, CBS Publishers, New Delhi.
4. Food Science by Potter NN, 5th Ed., 2006, CBS Publisher, New Delhi.
5. Technology of cereal, legume and oil seeds by Chakrobrty S. Deor, IBH Publisher.

COURSE OUTCOMES:

On successful completion of the subject, the students will be able to:
CO1: Study the structure and composition of cereals and pulses.
CO2: Understand the methods of milling for cereals and pulses
CO3: Understand the manufacturing of various products from cereals and pulses
CO4: Study the effect of anti-nutritional factors present in pulses.

Bachelor of Vocation (B.Voc.) FOOD PROCESSING SEMESTER – II

SESSION 2021-22

BVFP-207: Experiments in Food Chemistry

Time: 3 Hours **Max. Marks: 40**
Practical Marks: 30
Internal Marks: 10

Instructions for the Paper Setters:
Practical – Question Paper will be set with the mutual consent of Internal and ExternalExaminers on the spot.

COURSE OBJECTIVES:

Objective of this course is to:

- Determine the various constituents of foods.
- Learn principles behind analytical techniques associated with food.
- Explain the role of enzymes in fruit juice industry.
- Estimate various food components such as fats, fatty acids etc.
- Elaborate the qualitative analysis of sugars, proteins and lipids.

Practicals:

1. Determination of moisture in a given sample.
2. Microstructure of starches.
3. Determination of reducing sugar in the given food sample.
4. Nitrogen analysis by micro-kjeldahl or spectrophotometer method.
5. Estimation of fat by soxhlet method.
6. Estimation of free fatty acid of given sample.
7. Determination of salt in food products.
8. Qualitative analysis of sugars.
9. Qualitative analysis of proteins in given sample.
10. Qualitative analysis of lipids in the given sample.
11. Clarification of juices using enzymes

Books Recommend:

1. Hand Book of Analysis of Fruits & Vegetables by S. Ranganna.

2. Food Chemistry by Fennemma.

COURSE OUTCOMES:

On successful completion of the subject, the students will be able to:
CO1: Understand the analytical and experimental methods used in the study of the food components.
CO2: Study the applications of enzymes in fruit juice clarification.
CO3: Learn the quantitative analysis of various food components.

Bachelor of Vocation (B.Voc.) FOOD PROCESSING SEMESTER – II

SESSION 2021-22

BVFP-208 EXPERIMENTS IN FOOD HYGIENE AND SANITATION

Time: 3 Hours **Max. Marks: 40**
Practical Marks: 30
Internal Marks: 10

Instructions for the Paper Setters:
Practical – Question Paper will be set with the mutual consent of Internal and External Examiners on the spot.

COURSE OBJECTIVES: Objective of this course is to:

- Determine the hardness, alkalinity, pH of water.
- Learn principles behind analytical techniques associated with water.
- Explain the swab and rinse technique for assessing surface contamination.
- Gain insight into complete analysis of water used in food industry.
- Elaborate the concept of GMP and GHP.

1. Analysis of water used in food industries Determination of acidity of the given sampleof water.
2. Determination of alkalinity of the given sample of water.
3. Determination of the total hardness of Water.
4. Determination of pH of the given sample of Water.
5. Determination of Total Solids of the given sample of Water.
6. Determination of Total Dissolved Solids of the given sample of Water.
7. Assessment of surface sterilization using swab and rinse method.
8. Rapid adulteration tests for foods.
9. Case Study of food hygiene and sanitation (GMP/GHP) of a food industry.

Books Recommended:

1. Practical Food Microbiology and Technology (2nd edition) – J. Mountney and W.A.Gould, 1988.

COURSE OUTCOMES:
On successful completion of the subject, the students will be able to
CO1: Understand the analysis of water used in food industries
CO2: Study the rapid adulteration tests for foods.
CO3: Understand the case Study of food hygiene and sanitation (GMP/GHP) of a food industry.
CO4: Check the effectiveness of sterilisation

Bachelor of Vocation (B.Voc.) FOOD PROCESSING SEMESTER – II
SESSION 2021-22
BVFP-209: Experiments in Cereal Milling Technology

Time: 3 Hours **Max. Marks: 40**
Practical Marks: 30
Internal Marks: 10

Instructions for the Paper Setters:
Practical – Question Paper will be set with the mutual consent of Internal and ExternalExaminers on the spot.

COURSE OBJECTIVES:
Objective of this course is to:

- Discuss the physical characteristics of cereals and pulses
- Describe the technology of wheat processing and its products
- Elaborate the traditional and modern milling operations of wheat.
- Explain the dry and wet milling of maize.
- Give insight into cooking quality of rice.

Practicals:

1. Determination of physical characteristics of wheat.
2. Determination of physical characteristics of rice.
3. Determination of moisture, ash and crude fibre in cereal grains.
4. Milling of wheat into flour.
5. Milling of paddy to brown rice and white rice.
6. Cooking quality of rice.
7. Dry-milling of maize into grits
8. Wet-Milling of maize
9. Visit to flour mill, rice mill and pulse mill.

Books Recommended:

1. Technology of Cereals by Kent N. L. and Evers AD, 4th Ed., 1983, Woodhead Publishing Ltd.,UK.
2. Principle of Cereal Science & Technology by Kent. NL, 1983, Pergamon Press, London, UK.

COURSE OUTCOMES:
On successful completion of the subject, the students will be able to
CO1: Study the physical characteristics of cereals and pulses.
CO2: Understand the methods of milling for cereals and pulses
CO3: Study the physic-chemical analysis of cereals and pulses
CO4: Understand the qualitative analysis of different cereals

Bachelor of Vocation (B.Voc.) FOOD PROCESSING SEMESTER – II
SESSION 2021-22

BVFP-210 INDUSTRIAL

TRAININGSATISFACTORY/UNSATISFACTORY

Note: Submission of report and certificate after completion of Training.

COURSE OBJECTIVES:

To provide students exposure to industrial set-up

To enable students observe, first hand, work flow and processes in food industries and associated enterprises

A student will undergo 1 month compulsory training in any Food Processing Industry/ Institute concerned with processing and quality analysis of foods. After the completion of training the student will submit certificate issued by the industry/institute to the Head of concerned department. Student will have to submit training report within 2 weeks after the completion of training to the department. The report will be evaluated as satisfactory/Unsatisfactory.

COURSE OUTCOMES:

CO1: The student will be able to appreciate different processing and production technologies in various industrial settings

CO2: The student will be exposed to the diverse setting in food industries

Bachelor of Vocation (B.VOC.) FOOD PROCESSING SEMESTER – III

SESSION 2021-22

BVGC-301 Computer Applications

Time: 3 Hours **Max. Marks: 60**

Theory Marks:45

Internal Assessment:15

Instructions for the Paper Setters:

Note: 1. Medium of Examination is English Language.

Theory: – Question paper will contain seven questions in all and students will be asked toattempt any four questions. All questions will carry equal marks.

Theory:

UNIT-I

FUNDAMENTAL OF COMPUTER: Introduction to computer, Applications of computer.Components of computer. Primary and Secondary storage. Number systems.

INTRODUCTION TO WINDOWS: Parts of window screen (Desktop, Window, Icons), Startmenu, Taskbar, settings, application & document window, anatomy of a window (Title bar, minimize, maximize button, control box, scroll bars, scroll buttons, scroll boxes), Window explorer (expansion, collapsing of directory free, copying, moving, deleting files, folder, creating folders),About desktop icons (recycle bin, my computer, network neighborhood, briefcase), folder, shortcut creation, setting of screen saver, color settings , wallpaper, changing window appearance.

INTERNETInternet basics, Its uses and Applications.

UNIT-II

MS-WORD: Introduction to MS-word, Parts of window of word (Title bar, menu bar, statusbar, ruler),Creation of new document, opening document, insert a document into another document. Page setup, margins, gutters, font properties, Alignment, page breaks, header, footer, deleting, moving replace, a filing text in document. Saving a document, spell checker, printing a document, creating a table, entering editing text in tables, changing format of table, height width of row or column Editing, deleting, rows, Columns in table. Borders, shading, Templates, Wizards Drawing objects, mail merge.

MS-POWER POINT : Introduction, elements of Power Point Package, starting Power Point,Exploring Power Point menus, starting a new slide, Adding Titles, Text and Art, Moving text area and resizing text box starting a slide show, saving a presentation, printing slides, opening an existing presentation, Inserting and deleting slides in a presentation, changing text and correcting error, checking spelling, adding header and footer, closing a presentation, To quit from Power Point views, slide setup, setting up slide show, setting transistors and slide timings, Automatic slide show, Formatting and Enhancing text, Slide with graph.

Book Recommended:

1. Rajaraman, V. (2006)," Fundamental of Computers", 4th Edition , Prentice Hall India,New Delhi.
2. Alexis Leon and Matheus Leon (2001)," Introduction to Computers with MS office 2000",1st edition, TataMcGraw-Hill, New Delhi.
3. Srivastava, S.S(2002),"Ms-Office", Firewall Media, New Delhi.
4. Peter Norton(2010),"Introduction to Computers", 7th Edition, McGraw-Hill, New Delhi.
5. Sharma Anshuman,"A book of Fundamentals of Information Technology", Lakhanpal Publications.
6. MS Office BPB Publications.

Bachelor of Vocation (B.VOC.) FOOD PROCESSING SEMESTER – III

SESSION 2021-22

BVGC-302 Experiments in Computer Applications

Time: 3 Hours **Max. Marks: 40**

Practical Marks:30

Internal Assessment:10

Practical – Question Paper will be set with the mutual consent of Internal and External Examiners atthe spot.

PRACTICALS:

WINDOW 7:

1. Personalize the Windows 7 desktop
2. Add and remove gadgets
3. Add shortcuts
4. Move between windows and customize the taskbar
5. Use Windows Explorer and create folders
6. Move and rename folders and copy files
7. Move, rename, and delete files
8. Compress files and use the address bar
9. Describe and find files and folders
10. Resize, move, and scroll windows

MS-WORD 2010:

1. Create a document files, save it and print it.
2. Spell check the created document file.
3. Create a Table and sort the data within the table.
4. Mail Merge ainvitation to your friends.
5. Apply border to a particular paragraph and shade it 10% with Background yellow colour.

MS-POWER POINT 2010:

1. Create a presentation, save it and print it.
2. Format a presentation with changing the fonts and size and selecting text style and colours.
3. Create a graph; add titles, axes and legends to a graph.
4. Add a Clipart picture to a chart.

Book Recommended:

1. Rajaraman, V. (2006)," Fundamental of Computers", 4th Edition , Prentice Hall India,New Delhi.
2. Alexis Leon and Matheus Leon (2001)," Introduction to Computers with MS office 2000",1st edition, Tata McGraw-Hill,New Delhi.

Bachelor of Vocation (B.VOC.) FOOD PROCESSING SEMESTER – III
SESSION 2021-22

BVGC-303 ENVIRONMENTAL STUDIES–I (COMPULSORY)

Time: 3 Hrs. **Max. Marks: 50**
Theory Lectures: 1½ Hours/ Week

Section–A: (12 Marks): It will consist of five short answer type questions. Candidates will be requiredtoattempt three questions, each question carrying four marks. Answer to any of the questions should notexceed two pages.
Section–B: (16 Marks): It will consist of four essay type questions. Candidates will be required toattempt two questions, each question carrying eight marks. Answer to any of the questions should not exceed four pages.
Section–C: (9 Marks): It will consist of two questions. Candidate will be required to attemptone question only. Answer to the question should not exceed 5 pages.

1. The Multidisciplinary Nature of Environmental Studies:

- Definition, scope & its importance.
- Need for public awareness.

2. Natural Resources:

- Natural resources and associated problems:

a) Forest Resources: Use of over exploitation, deforestation, case studies. Timber extraction,mining, dams and their effects on forests and tribal people.
b) Water Resources: Use and over-utilization of surface and ground water, floods, drought,conflicts over water, dams-benefits and problems.
c) Mineral Resources: Use and exploitation, environmental effects of extracting and usingmineral resources, case studies.
d) Food Resources: World food problems, change caused by agriculture and overgrazing,effects or modern agriculture, fertilizer-pesticide problem, salinity, case studies.
e) Energy Resources: Growing of energy needs, renewable and non-renewable energyresources, use of alternate energy sources, case studies.
f) Land Recourses: Land as a resource, land degradation, soil erosion and desertification.Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.

3. Ecosystem:

Concept of an ecosystem.
Structure and function of an ecosystem.Producers, consumers and decomposers.Energy flow in the ecosystem.
Ecological succession.
Food chains, food webs and ecological pyramids.
Introduction, types, characteristic features, structure and function of the following ecosystems: a. Forest ecosystem
b. Grassland ecosystem c. Desert ecosystem
d. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

4. Social Issues and Environment:

From unsustainable to sustainable development.Urban problems related to energy.

Water conservation, rain water harvesting, watershed management.

Resettlement and rehabilitation of people; its problems and concerns.Case studies.Environmental ethics: Issues and possible solutions.

Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents andholocause. Case studies.

Wasteland reclamation. Consumerism and waste products.Environmental Protection Act:

- Air (prevention and Control of
- Pollution) Act. Water (prevention
- and Control of Pollution) Act.
- Wildlife Protection Act.
- Forest Conservation Act.

Issues involved in enforcement of environmental legislation.Public awareness.

5. National Service Scheme

- **Introduction and Basic Concepts of NSS:** History, philosophy, aims & objectives of NSS;Emblem,flag, motto, song, badge etc.; Organizational structure, roles and responsibilities of various NSS functionaries.
- **Health, Hygiene & Sanitation:** Definition, needs and scope of health education; Food andNutrition; Safe drinking water, water borne diseases and sanitation (Swachh Bharat Abhiyan); National Health Programme; Reproductive health.

References/Books:

1. Agarwal, K. C. 2001. Environmental Biology, Nidhi Publications Ltd. Bikaner.
2. Bharucha, E. 2005. Textbook of Environmental Studies, Universities Press, Hyderabad.
3. Down to Earth, Centre for Science and Environment, New Delhi.
4. Jadhav, H. & Bhosale, V. M. 1995. Environmental Protection and Laws. Himalaya Pub.
5. Joseph, K. and Nagendran, R. 2004. Essentials of Environmental Studies, Pearson Education (Singapore) Pte. Ltd., Delhi.
6. Kaushik, A. & Kaushik, C. P. 2004. Perspective in Environmental Studies,
7. Miller, T. G. Jr. 2000. Environmental Science, Wadsworth Publishing Co.
8. Sharma, P. D. 2005. Ecology and Environment, Rastogi Publications, Meerut.
9. Booklet on Safe Driving. Sukhmani Society (Suvidha Centre), District Court Complex, Amritsar
10. Kanta, S., 2012. Essentials of Environmental Studies, ABS Publications, Jalandhar.

Bachelor of Vocation (B.VOC.) FOOD PROCESSING SEMESTER – III

SESSION 2021-22

BVFP 304- CEREALS AND PULSES TECHNOLOGY

Time: 3 Hours **Max. Marks: 60**

Theory Marks: 45

Internal Marks: 15

Instructions for the Paper Setters:

Theory: – Question paper will contain eight questions in all and students will be asked to attempt five questions. All questions will carry equal marks. Question no. 1 will be objective type and compulsory.

COURSE OBJECTIVES:

Objective of this course is to:

- Describe the composition, structure and storage of food grains
- Give deep insight into the concept of parboiling.
- Elaborate the traditional and modern milling operations of wheat and technology of bakery and extruded products
- Discuss the principle and action of improvers and bleachers used in flour.
- Elaborate the processing of soybean into various products.

Theory:

UNIT-I

Cereal grain definition, Structure and chemical composition of wheat, rice and maize.Milling criteria and quality criteria for grains.

Wheat: Classification of wheat; cleaning and conditioning. Traditional and modern milling of wheat andflour extraction rate. Wheat flour- types and usage, Improvers and Bleachers - their principle and action.

UNIT-II

Parboiling of Paddy. Advantages and disadvantages of parboiling. Properties of parboiled rice.

Traditional and modern milling of paddy.

Dry and wet milling of maize.

UNIT-III

Introduction and chemical composition of pulses.

Decortication and polishing of pulses. Anti-nutritional factors of pulses and their elimination.

Soyabean- processing into soya flour, Soya Protein Concentrates and Isolates

Books Recommended:

1. David Dendy A.V, etal; Cereals and Cereal Products: Technology and Chemistry, - 2000

2. Manay, N.S, Shadaksharaswamy, M., Foods- Facts and Principles, New Age International Publishers, NewDelhi, 2004.

3. Potter, N.N. and Hotchkiss J. H. Food Science. CBS publishers and distributors. 1996.

4. Srilakshmi, B. Food Science. New Age International Publishers, New Delhi, 2003.

5.Subalakshmi, G and Udipi, S.A. Food processing and preservation. New Age International Publishers, NewDelhi, 2001.

COURSE OUTCOMES:

On successful completion of the subject, the students will be able to

CO1: Gain basic understanding of cereals, pulses and oilseeds after harvesting.

CO2: Study various types of processing methods of cereals, pulses and oilseeds

CO3: Study various products and by-products of cereals, pulses and oilseeds

CO4: Gain knowledge on manufacturing technologies of cereals, pulses and oilseeds.

Bachelor of Vocation (B.VOC.) FOOD PROCESSING SEMESTER – III

SESSION 2021-22

BVFP 305 FOOD MICROBIOLOGY

Time: 3 Hours **Max. Marks: 60**

Theory Marks: 45

Internal Marks: 15

Instructions for the Paper Setters:

Theory: – Question paper will contain eight questions in all and students will be asked to attemptfive questions. All questions will carry equal marks. Question no. 1 will be objective type and compulsory.

COURSE OBJECTIVES:

Objective of this course is to:

- Recognize and describe the characteristics of important pathogens and spoilage microorganisms
- in foods.
- Understand the role and significance of intrinsic and extrinsic factors on growth and response of microorganisms in foods.
- Identify ways to control microorganisms in foods
- escribe the beneficial role of microorganisms
- Gain deep insight about food infection and food intoxication.

Theory:

UNIT-I

Introduction - Origin of food microbiology as science, Food as nutrient for various microorganisms, Factor affecting the growth and survival of microorganisms in foods, General features and importanceof different groups of bacteria, yeasts and molds important in foods.

Methods for microbial examination of foods - Traditional, non-traditional and rapid methods forthemicrobial examination of food and food products.

UNIT-II

Food Spoilage - Microbial and biochemical aspect of food spoilage, role of bacteria, yeast and molds infood spoilage, Spoilage of cereal and cereal products, fruits and vegetables, meat and meat products, milk and milk products, fish and fish products, spoilage of egg and poultry and heated canned foods.

UNIT-III

Food Borne Illness - Food intoxication and food infection, Bacterial food poisoning by*Staphylococcusaureus, Clostridium botulinum, Salmonella, E. coli, Clostridium perfringens, Listeria monocytogenes*, and *Campylobacter jejuni*, Food borne viruses, Aflatoxigenic molds, Investigation of food borne disease outbreak.

Books Recommended:

1. Frazier WC and Westoff DC "Food Microbiology" 4th edition Tata Mc graw-Hill Publishing
2. Jay JM "Modern Food Microbiology" 3rd edition CBS Publishers and distributors Delhi 1987
3. Adams MR and Moss MO "Food microbiology" New Age International (P) Ltd. 1996
4. Gunasekaran P. "Laboratory Manual in Microbiology", New Age International (P) Ltd. 1996.

Bachelor of Vocation (B.VOC.) FOOD PROCESSING SEMESTER – III

SESSION 2021-22

BVFP 305 FOOD MICROBIOLOGY

Time: 3 Hours **Max. Marks: 60**

Theory Marks: 45

Internal Marks: 15

COURSE OUTCOMES:

On successful completion of the subject, the students will be able to:

CO1: Study the important genera of microorganisms associated with food and their characteristics.

CO2: Study the role of microbes in fermentation, spoilage and food borne diseases.

CO3: Understand the importance of food quality control by avoiding pathogenic microbial attack.

CO4: Study factors affecting food spoilage

Bachelor of Vocation (B.VOC.) FOOD PROCESSING SEMESTER – III

SESSION 2021-22

BVFP 306-DAIRY TECHNOLOGY-I

Time: 3 Hours **Max. Marks: 60**

Theory Marks: 45

Internal Marks: 15

Instructions for the Paper Setters:

Theory: – Question paper will contain eight questions in all and students will be asked to attemptfive questions. All questions will carry equal marks. Question no. 1 will be objective type and compulsory.

COURSE OBJECTIVES:

Objective of this course is to:

- Elaborate the composition and factors affecting composition of milk.
- Discuss physico-chemical properties of milk
- Describe the techniques used for processing and preservation of milk.
- Elaborate the process for manufacturing of market milk.
- Understand the processing of milk by using various techniques such as pasteurization, standardization, homogenization etc.,

Theory:

UNIT-I

Introduction Milk - Definition, sources, and composition of milk, factors effecting composition of milk, physiochemical properties of milk, collection and transportation of milk.

UNIT-II

Special milks: evaporated milk, condensed milk, standardized milk, toned milk, double toned milk, flavoured milk, reconstituted milk.

Processing of market milk Flowchart of milk processing, Reception, Different types of cooling systems. Clarification and filtration process, standardization- Pearson's square method.

UNIT-III

Pasteurization-LTLT, HTST and UHT process, continuous pasteuriser, Sterilisation and Homogenisation, Creamseparation- centrifugal cream separator, bactofugation.

Books Recommended:

1. Outlines of Dairy Technology by Sukumar De, 1980, Oxford University Press, New Delhi.
2. Alan H. Varnam, (2012), "Milk and Milk Products: Technology, chemistry and microbiology", Springer Science & Business Media Publishers.
3. Robinson, R. K., (2012), "Modern Dairy Technology: Volume 2 Advances in Milk Products", Springer Science & Business Media Publishers.

COURSE OUTCOMES:

On successful completion of the subject, the students will be able to

CO1: Study the composition of milk and factors affecting composition.

CO2: Study the physicochemical properties of milk

CO3: Understand the specifications and processing of special milks.

CO4: Study the standardisation, pasteurization, homogenization, bactofugation etc. of milk

Bachelor of Vocation (B.Voc.) FOOD PROCESSING SEMESTER – III
SESSION 2021-22

BVFP 307-: EXPERIMENTS IN CEREALS AND PULSES TECHNOLOGY

Time: 3 Hours **Max. Marks: 40**
Practical Marks: 30
Internal Marks: 10

Instructions for the Paper Setters:
Practical – Question Paper will be set with the mutual consent of Internal and External Examiners onthe spot.

COURSE OBJECTIVES:
Objective of this course is to:
- Demonstrate the physical characteristics of grains.
- Evaluate the physico-chemical properties of cereals.
- Discuss the methods of milling of cereals.
- Understand the cooking quality of cerals and pulses.
- Gain deep insight into the working of flour mill, rice mill and pulse mill.

Practicals:

1. Determination of physical characteristics of wheat.
2. Determination of physical characteristics of rice.
3. Determination of moisture content and ash content in cereals and pulses grains.
4. Determination of crude fiber content in cereals and pulses grains.
5. Milling of wheat into flour or meal
6. Milling of paddy to brown rice and white rice.
7. Cooking quality of pulses.
8. Visit to flour mill, rice mill and pulse mill.

COURSE OUTCOMES:
On successful completion of the subject, the students will be able to
CO1: Study the physical characteristics of cereals and pulses
CO2: Study the physic-chemical properties of cereals and pulses
CO3: Understand the milling of cereals
CO4: Understand the cooking quality evaluation of pulses.

Bachelor of Vocation (B.Voc.) FOOD PROCESSING SEMESTER – III

SESSION 2021-22

BVFP-308: EXPERIMENTS IN FOOD MICROBIOLOGY

Time: 3 Hours **Max. Marks: 40**

Practical Marks: 30

Internal Marks: 10

Instructions for the Paper Setters:

Practical – Question Paper will be set with the mutual consent of Internal and External Examiners onthe spot.

COURSE OBJECTIVES:

Objective of this course is to:

- Elaborate the sterilization and disinfection of equipment used in food microbiology laboratory.
- Demonstrate different types of microorganism colony shapes on agar plates.
- Isolate the fungi from food materials.
- Demonstrate microbiological analysis of egg, cereal product and fruit product.
- Understand the direct microscopic count method for counting microbes.

Practicals:

1. Sterilization and disinfection of equipment used in food microbiology laboratory.
2. Preparation of media, slant and broths required in the microbial analysis of foods.
3. To count the number of microorganisms by direct microscopic count method.
4. Study of different types of microorganism colony shapes on agar plates.
5. Study of the capsular and spore staining methods.
6. Isolation of fungi from food materials.
7. Study of incubation test of heated canned foods.
8. Study of Dye reduction test of milk.
9. Microbiological analysis of egg, cereal product and fruit product.

Books Recommended:

1. Frazier WC and Westoff DC "Food Microbiology" 4th edition Tata Mc graw-Hill Publishing
2. Jay JM "Modern Food Microbiology" 3rd edition CBS Publishers and distributors Delhi 1987
5. Adams MR and Moss MO "Food microbiology" New Age International (P) Ltd. 1996
6. Gunasekaran P. "Laboratory Manual in Microbiology", New Age International (P) Ltd. 1996.

COURSE OUTCOMES:

On successful completion of the subject, the students will be able to

CO1: Study the growth of the microorganisms in different culture systems.

CO2: Understand the media formulation and sterilization techniques used.

CO3: Study the different microorganism.

CO4: Understand the different food born disease and spoilage of food.

Bachelor of Vocation (B.Voc.) FOOD PROCESSING SEMESTER – III
SESSION 2021-22
BVFP-309: EXPERIMENTS IN DAIRY TECHNOLOGY-I

Time: 3 Hours **Max. Marks: 40**
Practical Marks: 30
Internal Marks: 10

Instructions for the Paper Setters:
Practical – Question Paper will be set with the mutual consent of Internal and External Examiners onthe spot.

COURSE OBJECTIVES:
Objective of this course is to:
- Perform chemical analysis of milk sample
- Demonstrate platform tests of milk like organoleptic tests, clot on boiling test, alcohol test, pH and % acidity test- Alizarin Alcohol test
- To understand different processing equipment in dairy plant
- Detect the adulteration of milk.
- Make report on the quality of given milk sample.

Practicals:

1. To prepare a chart of physico –chemical properties and microbiological standards of milk andmilk products.
2. Determination of specific gravity, SNF % and TS% of milk.
3. Determination of milk fat percentage by Gerber's method.
4. Platform tests of milk like organoleptic tests, clot on boiling test, alcohol test, pH and % aciditytest-Alizarin Alcohol test.
5. Detection of various adulterants and neutralizer in milk
6. Reporting on the quality of given sample of milk.
7. Visit to milk processing plants/NDRI, Karnal.

Books Recommended:
1. Outlines of Dairy Technology by Sukumar De, 1980, Oxford University Press, New Delhi.

2. Alan H. Varnam, (2012), "Milk and Milk Products: Technology, chemistry and microbiology", Springer Science & Business Media Publishers.

COURSE OUTCOMES:
On successful completion of the subject, the students will be able to:
CO1: Understand the physico-chemical analysis of milk.
CO2: Understand the detection of adulterants and neutralizers in milk.
CO3: Study the organoleptic tests of milk
CO4: Understand the quality control of milk.

Bachelor of Vocation (B.VOC.) FOOD PROCESSING SEMESTER – IV

SESSION 2021-22

BVGC 401 FOOD SAFETY AND LAWS

Time: 3 Hours **Max. Marks: 60**

Theory Marks: 45

Internal Marks: 15

Instructions for the Paper Setters:

Theory: – Question paper will contain eight questions in all and students will be asked to attemptfive questions. All questions will carry equal marks. Question no. 1 will be objective type and compulsory.

COURSE OBJECTIVES:

Objective of this course is to:

- Know different food laws and their importance.
- Discuss different adulterants and hazards and their safety measures.
- Implement different safety tools and regulation in food industry to produce safe products
- Elaborate the factors affecting food safety
- Gain knowledge about new approaches of food safety.

Theory:

UNIT-

IINTRODUCTION TO FOOD SAFETY

Definition, Factors affecting Food Safety, Importance of Safe Foods.

UNIT-II

FOOD HAZARDS OF PHYSICAL, CHEMICAL AND BIOLOGICAL ORIGIN

Introduction, Physical Hazards with common examples, Chemical Hazards (naturally occurring environmental and intentionally added and contaminants due to processing, Microbiological hazards (Bacterial and Fungal).

UNIT-

IIIFOOD SAFETY MANAGEMENT TOOLS

Prerequisites of food hygiene- GHPs ,GMPs, HACCP**,** TQM - concept and need for quality, Steps involved in implementation of food safety programme. Food safety laws and regulations (FSSAI).New approaches to food safety.

Recommended Books:

1. Adam MR and Moss MO Food microbiology New Age International (P) Ltd. ND Jay JM Modern Food Microbiology CBS publishers ND Potter NN Food Science CBS Publishers ND

2.Bhunia AK Food borne Microbial Pathogens (Mechanism and Pathogenesis) Food Science text series Springer Food Safety by Ian C Shaw: Publisher Wiley Blackwell

COURSE OUTCOMES:

On successful completion of the subject, the students will be able to:

CO1: Study the food quality, being affected from the adulterants, hazards etc and its safety.

CO2: Study food safety management tools: GHP, GMP etc.

CO3: Study different food laws and standards in India and their requirements and importance in controlling the quality

CO4: Study food safety regulations and their implementation in food industry to ensure the quality and safety of the foods.

Bachelor of Vocation (B.VOC.) FOOD PROCESSING SEMESTER – IV

SESSION 2021-22

BVGC 402 EXPERIMENTS IN FOOD SAFETY AND LAWS

Time: 3 Hours **Max. Marks: 40**

Practical Marks: 30

Internal Marks: 10

Instructions for the Paper Setters:

Practical – Question Paper will be set with the mutual consent of Internal and External Examiners onthe spot.

COURSE OBJECTIVES:

Objective of this course is to:

- Discuss physical , chemical and microbiological hazards in food materials.
- Demonstrate the GHP and follow them during food preparations.
- Describe the cleaning and sanitizing agents used in pre and post operative processes in food industry.
- Describe the HACCP chart for different food industries.
- Inspect the intentionally added adulterants in milk and spices.

Practicals

1. Identification of different hazards in food material.
2. Sensory evaluation of packed food products.
3. Demonstration of GHP follow during food preparations.
4. Study of cleaning and sanitizers used in pre and post operative processes in food industry.
5. Implementation of HACCP chart in food processing laboratory while cooking.
6. HACCP chart for different food industries.
7. Inspecting the intentionally added adulterants in spices.
8. Inspecting the intentionally added adulterants in milk.
9. Demonstration of different steps involved in implementation of food safety programme.

Recommended Books:

1.Bhunia AK Food borne Microbial Pathogens (Mechanism and Pathogenesis) Food Science text series Springer Food Safety by Ian C Shaw: Publisher Wiley Blackwell

COURSE OUCOMES:

On successful completion of the subject, the students will be able to:

CO1: Understand the identification of different hazards in food material.

CO2: Study various factors affecting Food Safety.

CO3: Understand the implementation of HACCP chart in food processing laboratory while cooking.

CO4: Inspect the intentionally added adulterants in spices and milk

Bachelor of Vocation (B.VOC.) FOOD PROCESSING SEMESTER – IV
SESSION 2021-22
BVGC-403 ENVIRONMENTAL STUDIES–II (COMPULSORY)

Time: 3 Hrs. **Max. Marks: 50**
Theory Lectures: 1½ Hours/ Week

Section–A: (12 Marks): It will consist of five short answer type questions. Candidates will be required to attempt three questions, each question carrying four marks. Answer to any of the questions should not exceed two pages.
Section–B: (16 Marks): It will consist of four essay type questions. Candidates will be required toattempt two questions, each question carrying eight marks. Answer to any of the questions should not exceed four pages.
Section–C: (9 Marks): It will consist of two questions. Candidate will be required to attempt onequestion only. Answer to the question should not exceed 5 pages.

1. Biodiversity and its Conservation:

- Definition: Genetic, species and ecosystem diversity.
- Biogeographical classification of India.
- Value of Biodiversity: Consumptive use; productive use, social, ethical, aesthetic and option values.
- Biodiversity of global, National and local levels.
- India as mega-diversity nation.
- Hot-spots of biodiversity.
- Threats to Biodiversity: Habitat loss, poaching of wild life, man wildlife conflicts.
- Endangered and endemic species of India.
- Conservation of Biodiversity: In situ and Ex-situ conservation of biodiversity.

2. Environmental Pollution:

Definition, causes, effects and control measures of:

a) Air Pollution
b) Water Pollution
c) Soil Pollution
d) Marine Pollution
e) Noise Pollution
f) Thermal Pollution
g) Nuclear Hazards
h) Electronic Waste

Solid Waste Management: Causes, effects and control measures of urban and industrialwastes.
Role of an individual in prevention of pollution.Pollution
case studies.
Disaster Management: Floods, Earthquake, Cyclone and Landslides.

3. Human Population and the Environment

Population growth, variation among nations.Population explosion-Family welfare programme.

Environment and human health.Human rights.

Value education.HIV/AIDS.

Women and child welfare.

Role of information technology in environment and human health.Case studies.

Road Safety Rules & Regulations**:** Use of Safety Devices while Driving, Do‟s and Don‟ts while Driving, Role of Citizens or Public Participation, Responsibilities of Public under MotorVehicle Act, 1988, General Traffic Signs.

Accident & First Aid**:** First Aid to Road Accident Victims, Calling Patrolling Police & Ambulance.

4. National Service Scheme:

- **Entrepreneurship Development:** Definition & Meaning; Qualities of good entrepreneur; Steps/ waysinopening an enterprise; Role of financial and support service Institutions.
- **Civil/Self Defense:** Civil defense services, aims and objectives of civil defense; Needs for self-defensetraining.

5. Field Visits:

- Visit to a local area to document environmental assets–river/forest/grassland/hill/mountain.
- Visit to a local polluted site–Urban/Rural/Industrial/Agricultural.
- Study of common plants, insects, birds.
- Study of simple ecosystems–pond, river, hill slopes etc.
- Contribution of the student to NSS/any other social cause for service of society.

Note: In this section the students will be required to visit and write on the environment of anarea/ecosystem/vi1lage industry/disaster/mine/dam/agriculture field/waste management/ hospital etc. with its salient features, limitations, their implications and suggestion for improvement.

References/Books:

1. Agarwal, K. C. 2001. Environmental Biology, Nidhi Publications Ltd. Bikaner.
2. Bharucha, E. 2005. Textbook of Environmental Studies, Universities Press, Hyderabad.
3. Down to Earth, Centre for Science and Environment, New Delhi.
4. Jadhav, H. & Bhosale, V. M. 1995. Environmental Protection and Laws. Himalaya Pub.
5. Joseph, K. and Nagendran, R. 2004. Essentials of Environmental Studies, Pearson Education (Singapore) Pte. Ltd., Delhi.
6. Kaushik, A. & Kaushik, C. P. 2004. Perspective in Environmental Studies,
7. Miller, T. G. Jr. 2000. Environmental Science, Wadsworth Publishing Co.
8. Sharma, P. D. 2005. Ecology and Environment, Rastogi Publications, Meerut.
9. Booklet on Safe Driving. Sukhmani Society (Suvidha Centre), District Court Complex, Amritsar
10. Kanta, S., 2012. Essentials of Environmental Studies, ABS Publications, Jalandhar.

Bachelor of Vocation (B.VOC.) FOOD PROCESSING SEMESTER – IV
SESSION 2021-22

BVFP-404 BAKERY AND CONFECTIONERY TECHNOLOGY

Time: 3 Hours **Max. Marks: 60**
Theory Marks: 45
Internal Marks: 15

Instructions for the Paper Setters:

Theory: – Question paper will contain eight questions in all and students will be asked to attempt five questions. All questions will carry equal marks. Question no. 1 will be objective type and compulsory.

COURSE OBJECTIVES:

Objective of this course is to:

- Discuss the role of ingredients in baking and principles behind baking and confectionery technology.
- Explain the working principle of various dough testing equipments.
- Execute the knowledge for development of various bakery products and their quality determination.
- Describe the processing and preparation of confectionary products.

Discuss the construction and working of various equipments involved in manufacturing of bakery and confectionary products.

THEORY

UNIT-I

Quality analysis of wheat flour, physical dough testing instruments, major and minor ingredients used for bakery products, leavening agents. Role of ingredients in baking.

Principles of baking technology. Preparation methods of bread, cookies and cakes.

UNIT-II

Composition and characteristics of cane Juice, Cane Juice extraction. Manufacturing of sugar. Deterioration of sugars during storage & transportation and its prevention, By-products of sugar industry and their utilization.

UNIT-III

Classification of confectionary. Hard and soft boiled sugar confectionary: fondant, fudge,caramel, toffee butterscotch, Sugar panning, hard boiled candy.

Recommended Books:

1. Chocolate, Cocoa and Confectionary: Science & Technology by Minife, 1997, AVI Publishing Co., New York.
2. Handbook of Cane Sugar Technology by Mathur RBL, 1986, Oxford & IBH Publishing Co., New Delhi.
3. The Science of Cookie & Cracker Production by Faridi H., 1994, Chapman & Hall, UK.
4. Technology of Cereals by Kent, N.L. Pergamon Press, Oxford, UK.
5. Modern Cereal Science and Technology, by Pomeranz, Y. VCH Pub., New York.1987.

COURSE OUTCOMES:

On successful completion of the subject, the students will be able to:

CO1: Study the role of ingredients in baking and principles of baking technology.
CO2: Study preparation methods of bakery and confectionery products.
CO3: Understand the basic steps involved in sugar manufacturing, its storage
CO4: Study utilization of its bi-products.

Bachelor of Vocation (B.VOC.) FOOD PROCESSING SEMESTER – IV

SESSION 2021-22

BVFP- 405 DAIRY TECHNOLOGY-II

Time: 3 Hours **Max. Marks: 60**

Theory Marks: 45

Internal Marks: 15

Instructions for the Paper Setters:

Theory: – Question paper will contain eight questions in all and students will be asked to attempt five questions. All questions will carry equal marks. Question no. 1 will be objective type and compulsory.

COURSE OBJECTIVES:

Objective of this course is to:

- Discuss about specifications of different milk products.
- Implement the technology in manufacturing of butter and cheese.
- Interpret the technological aspects in manufacturing of ice cream, condensed and evaporated milk products.
- Use the technology to manufacture the fermented milk based and indigenous products.
- Explain the defects and their prevention in butter and ice-creams.

Theory:

UNIT-I

Fat rich dairy products:Cream: Different types of cream with their respective fat content, composition of cream, productionmethods: gravity methods, mechanical method- by the use of cream separator.Neutralization of cream.

Butter: Types of butter, composition. Preparation of butter. Factors affecting the churn ability ofcream. Churning theories.Standards of butter and shelf life.

Ghee: Manufacturing methods of ghee. storage of ghee and shelf life.

UNIT-II

Cheese: Classification of cheese. Quality of milk for cheese making. Preparation method ofcheddar cheese.

Condensed and evaporated milk: Definition, composition & standards. Condensingoperations.

Ice Cream: Ingredients used in ice cream and their role in processing. Manufacturingprocess. Defects of ice cream, their causes and remedies.

UNIT-III

Indigenous milk products: Heat desiccated milk products: khoa, basundi etc.; Acid coagulated products|: chhana, chakka, shrikhand, etc.; Indigenous milk based sweets,Fermented products: dahi, lassi.

Books Recommended:

1. Outlines of Dairy Technology by Sukumar De, 1980, Oxford University Press, New Delhi.
2. Alan H. Varnam, (2012), “Milk and Milk Products: Technology, chemistry and microbiology”, Springer Science & Business Media Publishers.
3. Robinson, R. K., (2012), “Modern Dairy Technology: Volume 2 Advances in Milk Products”, Springer Science & Business Media Publishers.

COURSE OUTCOMES:

On successful completion of the subject, the students will be able to

CO1: Study about milk composition and its various properties and different adulterants.

CO2: Understand the working of equipment and process technology for various milk products.

CO3: Study the process technology for condensed milk and fermented milk products

CO4: Gain knowledge on indigenous milk products their specifications and their manufacturing.

Bachelor of Vocation (B.VOC.) FOOD PROCESSING SEMESTER – IV

SESSION 2021-22

BVFP-406 FOOD PACKAGING

Time: 3 Hours **Max. Marks: 60**

Theory Marks: 45

Internal Marks: 15

Instructions for the Paper Setters:

Theory: – Question paper will contain eight questions in all and students will be asked to attempt five questions. All questions will carry equal marks. Question no. 1 will be objective type and compulsory.

COURSE OBJECTIVES:

Objective of this course is to:

- Describe the objectives, functions of packaging and select the packaging material based on requirement and properties of material.
- Discuss the manufacturing and characteristics of various packaging materials viz paper, glass, metal, and plastic.
- Predict shelf life of different food materials
- Discuss the packaging equipment and machinery and packaging systems for various types of food.
- Explain specialized techniques in food packaging such as Active, aseptic, controlled & modified atmospheric packaging etc.

Theory:

UNIT-I

Packaging Technology: Definitions, functions of packaging and packaging materials.

Properties of materials such as tensile strength, bursting strength, tearing resistance, punctureresistance, impact strength and tear strength.

Barrier properties of packaging materials: Gas transmission rate (GTR), water vapour transmission rate (WVTR)

UNIT-II

Paper: Manufacturing of paper and types of papers

Glass: composition, properties, types of closures, methods of bottle making.

Metals: Manufacturing of Tinplate containers and tinning process

UNIT-III

Plastics: Types of plastic films, laminates, edible films, biodegradable plastics.

New trends in food packaging: Aseptic processing of food products, Vacuum packaging, Gas packaging

Books Recommended:

1. Cruess, W.V. Commercial Fruit & Vegetable Products. Allied Scientific Publishers, New Delhi. 2003
2. Davis, E.G. Evaluation of tin & plastic containers for foods. CBS Publishers, New Delhi. 2004
3. Gopal T.K.S. Seafood packaging, CIFT, Matsyapuri Cochin,2007
4. Potter, N. N, Hotchkiss, J. H. Food Science. CBS Publishers, New Delhi. 2000.
5. Sacharow, S., Griffin, R.C. Food Packaging. AVI Publishing Company, West Port, Connecticut. 2000
6. Srilakshmi, B. Food Science. New Age International Publishers, New Delhi, 2003

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COURSE OUTCOMES:

On successful completion of the subject, the students will be able to

CO1: Study the functions of packaging and familiarize them with different types of food packaging materials and their properties.

CO2: Study different food packaging equipment and machinery.

CO3: Select and finalize different types of packaging materials based on the composition and requirements of foods.

CO4: Gain knowledge on new technology involved in food packaging

Bachelor of Vocation (B.Voc.) FOOD PROCESSING SEMESTER – IV
SESSION 2021-22
BVFP- 407: EXPERIMENTS IN BAKERY AND CONFECTIONARY TECHNOLOGY

Time: 3 Hours **Max. Marks: 40**
Practical Marks: 30
Internal Marks: 10

Instructions for the Paper Setters:
Practical – Question Paper will be set with the mutual consent of Internal and ExternalExaminers on the spot.

COURSE OBJECTIVES:
Objective of this course is to:

- Discuss the raw material of bakery industry, relate the rheological properties to the quality of baked product.
- Demonstrate the manufacturing of cookies, jaggery etc.
- Execute the knowledge for development of various bakery products and their quality determination.
- Describe the processing and preparation of confectionary products.
- Discuss the construction and working of various equipments involved in manufacturing of bakery and confectionary products.

Practicals:

1. Preparation of different types of Bread.
2. Principle and preparation of cakes.
3. Preparation of cookies
4. Quality and sensory evaluation of baked products.
5. Preparation of Hard and soft ball candy
6. Preparation of Caramel.
7. Preparation of fondant
8. Preparation of jaggery and jaggery products

Books Recommended:

1. Durbey, S.C. Basic Baking: Science and Craft. Gujarat Agricultural University, Anand (Gujrat).1979
2. Kent, N.L. 1. Technology of Cereals.3rdedn.Pergamon Press, Oxford, UK 1983.

COURSE OUTCOMES:
On successful completion of the subject, the students will be able to:
CO1: Understand the selection of the raw material used for preparation of various bakery and confectionary products.
CO2: Study basics principles behind baking.
CO3: Study the basic steps and operation involved in the preparation of bread, Biscuits and cakes
CO4: Understand the baking process of different confectionary products

Bachelor of Vocation (B.Voc.) FOOD PROCESSING SEMESTER – IV
SESSION 2021-22
BVFP-408: EXPERIMENTS IN DAIRY TECHNOLOGY-II

Time: 3 Hours **Max. Marks: 40**
Practical Marks: 30
Internal Marks: 10

Instructions for the Paper Setters:
Practical – Question Paper will be set with the mutual consent of Internal and ExternalExaminers on the spot.

COURSE OBJECTIVES:
Objective of this course is to:

- Explain the construction and working of dairy equipments.
- Demonstrate the manufacturing process of indigenous milk products.
- Handle various equipments involved in milk products processing.
- Examine the quality of milk products.
- Elaborate the technology behind manufacturing of different milk products.

Practicals:

1. To study the construction and working of a cream separator.
2. Cream separation.
3. Preparation of Butter.
4. Preparation of ghee from butter.
5. Preparation of ice-cream and kulfi,
6. Preparation of milk sweets: burfi, gulabjamun,
7. Judging and grading of condensed milk products
8. Visit to N.D.R.I., Karnal.

Books Recommended:
1. Outlines of Dairy Technology by Sukumar De, 1980, Oxford University Press, New Delhi.
2. Alan H. Varnam, (2012), "Milk and Milk Products: Technology, chemistry and microbiology", Springer Science & Business Media Publishers.
3. Robinson, R. K., (2012), "Modern Dairy Technology: Volume 2 Advances in Milk Products", Springer Science & Business Media Publishers.

COURSE OUTCOMES:
On successful completion of the subject, the students will be able to
CO1: Study the various physico-chemical analysis milk products.
CO2: Understand the unit operation/working of different milk processing equipment.
CO3: Understand the preparation of various milk products.
CO4: Learn the working of cream sperator

Bachelor of Vocation (B.Voc.) FOOD PROCESSING SEMESTER – IV
SESSION 2021-22
BVFP-409: EXPERIMENTS IN FOOD PACKAGING

Time: 3 Hours **Max. Marks: 40**
Practical Marks: 30
Internal Marks: 10

Instructions for the Paper Setters:
Practical – Question Paper will be set with the mutual consent of Internal and ExternalExaminers on the spot.

COURSE OBJECTIVES:
Objective of this course is to:

- Identify various packaging materials used in food packaging
- Suitability of packaging materials with various chemicals
- Use testing methodology to determine the characteristics of tin plates, aluminium, glass, paper and plastic used for making packages.
- Explain the working and construction of different package filling and testing machinery
- Concludes the data of experiments and present clearly in reports.

Practicals:

Practicals:

1. Identification and testing of packaging materials.
2. Determination of wax from wax paper.
3. Testing of lacquered tin plate sheets.
4. Measurement of tin coating weight by Clarke's method.
5. To determine grease resistance of packaging materials.
6. To determine chemical resistance of packaging materials.
7. Determination of water vapour transmission rate of packaging material.
8. Packaging the food material in seal and shrink packaging machine and study its shelf life.
9. Testing the strength of glass containers by thermal shock test.
10. Determination of COBB's value of paper board.

Books Recommended:

1. Cruess, W.V. Commercial Fruit & Vegetable Products. Allied Scientific Publishers, New Delhi.2003
2. Davis, E.G. Evaluation of tin & plastic containers for foods. CBS Publishers, New Delhi. 2004 3.Gopal T.K.S. Seafood packaging, CIFT, Matsyapuri Cochin,2007

COURSE OUTCOMES:
On successful completion of the subject, the students will be able to
CO1: Understand the identification of packaging materials used in food packaging.
CO2: Study different tests performed on packaging materials and filled packages.
CO3: Calculate the shelf life of foods inside packaging materials
CO4: Understand the selection of suitable packaging materials.

Bachelor of Vocation (B.Voc.) FOOD PROCESSING SEMESTER – IV
SESSION 2021-22

BVFP-410 INDUSTRIAL

TRAINING

SATISFACTORY/UNSATISFACTORY

Note: Submission of report and certificate after completion of Training.

COURSE OBJECTIVES:

COURSE OBJECTIVES:

The student will be able to appreciate different processing and production technologies in various industrial settings and will be exposed to the diverse setting in food industries

A student will undergo 1 month compulsory training in any Food Processing Industry/ Institute concerned with processing and quality analysis of foods. After the completion of training the student will submit certificate issued by the industry/institute to the Head of concerned department. Student will have to submit training report within 2 weeks after the completion of training to the department. The report will be evaluated as satisfactory/Unsatisfactory.

COURSE OUTCOMES: On completing the course, the students will be able to

CO1: Get exposure to industrial set-up

CO2: Observe, first hand, work flow and processes in food industries and associated enterprises