



NOTIFICATION

It is notified for the information of all the stakeholders in General and the candidates of Class 11th and 12th, in particular that:

- 1- The Syllabi and Courses of Studies for Higher Secondary Part-Ist (Class 11th) of **Urdu, and Bio-technology** have been revised/changed from the Academic Session 2018-19 in case of Kashmir Division/Winter zone areas of Jammu Division including Leh and Kargil districts and Academic session 2019-20 in case of Summer Zone areas of Jammu Division .
- 2- That the syllabus and Courses of Study for Higher Secondary Part-II (Class 12th) of **Environmental Science** has been revised/changed from the Academic Session 2018-19 in case of Kashmir Division/ winter Zone areas of Jammu Division including Leh & Kargil districts and Academic Session 2019-20 in case of Summer Zone areas of Jammu Division .
- 3- It is also to notify that the syllabi of one newly introduced subject **"Food Technology"** has been prescribed for 11th Class from the Academic Session 2018-19 and onwards.

The question papers for Regular/Fresh Private candidates who have to appear in *Annual Session scheduled to be held in October-Nov., 2019 in Kashmir Division/ Winter zone areas of Jammu Division including Leh & Kargil districts and in Feb-March 2020 in Summer Zone areas of Jammu Division shall be set from the revised/changed syllabi of above mentioned subject/s.* The revised/changed syllabus is available on BOSE official website: www.jkbose.ac.in.

No: - F :(Acad-C) Rev-Syllabi/XI-XII/19

Dated: 17-01-2019.

Sd/-

SECRETARY

Copy to the:-

- 1- Secretary to Govt. School Education Department Civil Secretariat, Jammu for information.
- 2- Director School Education Kashmir/Jammu for information.
- 3- Special/Addl Secretary to Govt., School Education Department, Civil Secretariat, Jammu for information.

- 4- Joint Secretary, Examination/ Secrecy/ General/Publication-ITSS J.D/K.D for information & n/action.
- 5- Joint Director/Principal State Institute of Education (SIE) Kashmir/Jammu for information.
- 6- Chief Accounts Officer Central for information.
- 7- All Chief Education Officers of J&K State for information.
- 8- ALL Assistant Directors, CDR Wing JD/K.D for information.
- 9- Assistant Director (Y) CDR wing J.D is requested to please upload all the revised/changed syllabi on official website.
- 10- Deputy/Assistant Secretary, Forms/General Section/Certificates/ Audit/ Registration/ Records/ Verification/ Textbook/Adm, J.D/K.D for information.
- 11- Deputy/Assistant Secretary, Examination/Secrecy unit Ist, II, III K.D/J.D for information
- 12- Deputy/Assistant Secretary, Central Admn/Central Secrecy/Central Forms/ Central Textbook for information.
- 13- All Academic Officers J.D/K.D for information.
- 14- Accounts Officer, J.D/K.D for information
- 15- Heads of all the Higher Secondary Schools (Govt./Pvt.) of J&K State for information.
- 16- P/S to Chairman/Secretary for information of the Chairman/Secretary.
- 17- All Sub/Branch offices of the Board.
- 18- Information Officer J.D/K.D for information. He is requested to please publish the notification in the local dallies of the State.
- 19- Inchage ITSS for uploading of revised/changed syllabi on official website www.jkbose.ac.in.
- 20- P.A to Director Academics for information.
- 21- All Sections of the Board.
- 22- Concerned file.


Deputy Secretary
Academic Central


17/01/19

FOOD TECHNOLOGY

CLASS 11TH

Maximum Marks: 100

Theory: 70

Practical: 30

Unit-I. Introduction to Food Technology: (10 Marks)

- Career in Food science and activities of food scientists.
- Scope, importance and constraints of food processing in India.
- Classification of foods on the basis of shelf life, pH and origin.
- Different types of food spoilage viz: Microbial, physical, biochemical.
- Common storage pests and their control.

Unit-II: Food Microbiology: (10 marks)

- Historical developments in food microbiology and their significance.
- Microbial spoilage of milk, meat, fruits, vegetables, cereals and their products.
- Useful microbes in food processing and human health.
- Food borne diseases (Salmonellosis, Botulism, Listeriosis, Diarrhoea, Dysentery and Escherichia coli).

Unit-III: Principles of preservation: (15 marks)

- Preservation by sugar and salt.
- Preservation by low temperature (freezing, refrigeration)
- Preservation by high temperature (pasteurization, sterilization and aseptic processing).
- Preservation through moisture removal processes viz concentration, evaporation, drying and dehydration.
- Preservation by use of irradiation.
- Preservation by use of chemical preservatives.

Unit-IV: Food Chemistry and Nutrition: (15 marks)

- Classification, sources, functional and nutritional importance of carbohydrates, proteins and fats; PCM
- Sources and functions of vitamins (fat soluble, water soluble) and minerals (calcium, iron, iodine)

- Concept of balanced diet.
- Interrelationship between health and Nutrition.

Unit-V. Packaging Technology:

(10 marks)

- Functions of packaging
- Commonly used packaging materials and their properties: Glass, metal, plastic and cellulosic packages.
- Packaging requirements of fruits, vegetables, cereals, milk, meat and their processed products.
- Concept of laminates.
- Novel food packaging techniques: MAP, Active packaging.
- Environment friendly Packages: Biodegradable packaging, edible coatings.

Unit-VI. Food Quality and Safety

(10 marks)

- Definition and importance of Quality.
- Traditional, modern and consumers concept of quality; Food quality attributes.
- Sampling- Purpose and methods of sampling.
- Quality Evaluation of foods (Subjective and objective methods)
- Food adulteration and common adulterants in milk, spices, honey, pulses and sugar.
- Common hazards associated with food: Physical, chemical and biological.
- Introduction to FSSA 2006
- Concept of HACCP.

Practicals: (30 Marks)

1. Microscopy- Types and working of microscope.
2. Cleaning and sterilization of glassware.
3. Gram staining.
4. Preparation of Nutrient media, techniques of inoculation.
5. Total microbial count of given food sample.
6. Preparation of standard solutions (Molar, Normal, ppm and percentage)
7. Proximate composition of different food products- Moisture, protein and fat.
8. Visit to health centers/ demonstration of various nutritional disorders.
9. Qualitative tests for determination of adulterants in: Milk, turmeric, sugar and Honey.
10. Preparation of brine and syrup.
11. Determination of adequacy of blanching.
12. Identification of different types of packaging materials.
13. Visit of students to different laboratories of Concerned Universities or nearby institution.

Recommended Book for 11th Class

1. Food Science by B. Srilakshmi
2. Food Science – Norman N. Potter, Joseph H. Hotchkiss
3. Knechtges LI. Food Safety-Theory and Practice, USA: Jones and Barlette Learning 2012
4. Food Chemistry – H D Blitz, W. Grosch
5. Food Chemistry and Nutrition – A.W. Duncan
6. Food & Beverage laws-Food safety and Hygiene-Jagmohan Negi
7. Toxicology- A. Sood
8. Chemical analysis of food and food products by Morris; 3rdedtn,
9. Handbook of Analysis and quality control for fruit and vegetable products - Ranganna
10. Laboratory Techniques in Food Analysis – Pearson
11. Food Analysis – Theory and Practice – Pomeranz
12. Food Analysis and Quality Control- Kalia, M
13. Food Microbiology □ William Frazier, Dannise Westhoff
14. Food Biotechnology □ S.N. Tripathy
15. M. Mahadeviah and R.V. Gowramma Food Packaging Materials
16. Principles of Food Packaging - S. Saclarow and R.C. Griffin

Website: www.fssai.gov.in

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CLASS XII

ENVIRONMENTAL SCIENCE

Maximum Marks:100

Time: 3 hours

Theory: 70 marks

Practical:30 marks

UNIT 1: Air and Noise Pollution

(10 Marks)

- Air pollution : sources and types
- Impact of air pollution on environment
- Control of air pollution (gaseous and particulate matter)
- Noise pollution : sources and effects on health
- Control of noise pollution

UNIT 2: Water Pollution

(10 Marks)

- Water pollution: sources and impacts
- Concept of eutrophication and bio magnification
- Marine pollution
- Water pollution control
- Sewage treatment (primary and secondary)

UNIT 3:Soil Degradation

(10 Marks)

- Soil composition and profile
- Soil types (Indian classification of soils)
- Soil erosion : causes, impacts and control
- Soil pollution : causes and impacts
- Control of soil pollution



UNIT 4: Solid and Hazardous Waste Management (10 Marks)

- Solid wastes: sources, generation and impacts.
- Disposal of solid wastes (composting, incineration, sanitary landfill)
- Management of solid waste
- Hazardous waste: definition and characteristics
- Management of hazardous waste (deep well injection, plasma torch, incineration)

UNIT 5: Biodiversity Management (10 Marks)

- Biodiversity and its levels
- Importance of biodiversity
- Threats to biodiversity : causes and impacts
- Concept of threatened species (as per IUCN : extinct, endangered, vulnerable, rare)
- Biodiversity conservation : in- situ, ex- situ

UNIT 6: Global Environmental issues (10 Marks)

- Climate change and global warming : causes, impacts and international efforts for combatting global warming (Kyoto protocol)
- Ozone layer depletion: causes, impacts and global efforts for control. (Montreal protocol)
- Acid rain: causes, impacts and control.
- Smog and its types.
- Desertification and its control




UNIT 7: Environmental management and Legislation: (10 Marks)

- Concept of sustainable development
- Environmental Impact Assessment: Scope and Key Elements.
- Salient features of Water (Prevention and Control of Pollution) Act, 1974.
- Salient features of Air (Prevention and Control of Pollution) Act, 1981.
- Salient features of Environment Protection Act, 1986.

PRACTICALS:

1. Determination of pH of different water and soil samples.
2. Determination of soil texture using feel method.
3. Documentation of macrophytic aquatic plants.
4. Visit to a nearby lake/wetland/river/hydropower plant and preparation of a field report.
5. Collection of data regarding different types of solid waste generated in your locality.
6. Compilation of names of different endangered and endemic plant and animal species of your locality.



Biotechnology

Class 11th

Maximum Marks: 100

Theory: 70 Marks

Practical: 30

Unit I: Introduction to Biotechnology

Chapter 01: Biotechnology: an overview

04 marks

Biotechnology Definitions, Historical perspectives, Technology and Applications of Biotechnology, Global market and Biotech products, Public perception of biotechnology, Biotechnology in India and Global trends

Unit II: Cells and organisms

Chapter 01: The Basic unit of Life

08 marks

Cell Structure and Components, Structure and function of Cell wall, Plasmamembrane, Endoplasmic Reticulum, Golgi complex, Mitochondria, Chloroplast, Vacuole, Lysosome, Peroxisome, Ribosomes, Nucleus, Cytoskeleton.

Chapter 01: Cell Growth and Development

10 marks

Cell Division, Mitosis, Meiosis, Cell Cycle, Cell Communication, Nutrition, Internal Transport, Homeostasis, Reproduction, Animal and Plant development, Immune Response in Animals, Programmed Cell Death, Defense Mechanisms in Plants.

Unit III: Biomolecules

Chapter 01: Biomolecules; Building Blocks

08 marks

Ionization of water, Concept of pH, Buffer, Carbohydrates, Classification, Structure of Glucose, Fructose, Lactose, Sucrose, Amino acids, Classification, Zwitter ion, Isoelectric point, Fatty Acids Triglycerides, Sphingolipids, Cholestreol, Vitamins as precursors of Coenzymes, Nucleotides, Cyclic AMP.

Chapter 02: Macromolecules: Structure and Function

08 marks

Polysaccharides, Cellulose, Starch, Glycogen and Peptidoglycan, Proteins, primary, secondary, tertiary and quaternary structure, Enzymes, Classification and Properties, Lipids and Biomembranes, Nucleic Acids, DNA and RNA

Chapter 3:- Biochemical transformations

08 marks

Glycolysis, Fermentation, Citric acid cycle, Electron transport chain, Photosynthesis, Light reaction, Calvin cycle.

Unit III: Genetics and Molecular Biology

Chapter 01: Concept Of Genetics

10 marks

Historical Perspective, Mendel's Law of Dominance, Law of Segregation, Law of Independent Assortment, Linkage and Crossing over, Chromosome Theory of Inheritance, Multiple allelism, Sex linked Inheritance, Extranuclear Inheritance.

Chapter 02: Genes and Genomes: Structure and Function

10 marks

Discovery of DNA as Genetic Material, DNA Replication, Fine Structure of the Genes, Transcription Genetic Code, Translation. Regulation of Gene Expression, Mutations, Human Genetic Disorders, Genome, Viral, Prokaryotic and Eukaryotic Genomes.

Unit IV: Bioanalytical techniques

04 marks

Chapter 1: Elementary Idea of Bioanalytical Techniques: Microscopy, Centrifugation, pH meter, Chromatography, Electrophoresis, Colorimetry.

PRACTICALS

30 marks

1. Safety rules in the laboratory
2. Emergency treatment for laboratory accidents
3. Care and cleaning of glassware apparatus
4. Operation of autoclave, incubator, water bath, pH meter, vaccum pump, centrifuge
5. Sterilization techniques, moist heat, dry heat and filtration methods
6. Preparation of bacterial growth medium
7. Slide preparation of lactobacillus from curd
8. Preparation of 0.2 M acetate and bicarbonate buffers of pH 4.7 and 9.2 respectively
9. Cell counting
10. Detection of carbohydrate by Molisch's test.
11. Estimation of whey protein by biuret method
12. Temporary mount of mitosis from onion root tip
13. Study of permanent slides of Staphylococcus, Streptococcus, Sarcina, E.coli, vibrio cholera, Streptomyces, Asperigillus, Penicillium, Spirulina, Nostoc

حصہ نثر نمبرات ۲۵

داستان	میرامن دہلوی	حاتم کی سخاوت	۱
کہانی	مرزا فرحت اللہ بیگ	ایک کہانی	۲
انشائیہ	رشید احمد صدیقی	دعوت	۳
مضمون	پنڈت جوہر لال نہرو	ایک یادگار وصیت	۴
مضمون	عبدالحق شیخ لدائی	سلک روٹ	۵
خاکہ	مولوی عبدالحق	گدڑی کا لال نور خان	۶
مضمون	ڈاکٹر ذاکر حسین	آخری قدم	۷
ڈراما	اطہر پرویز	مٹلے کی ہولی	۸

حصہ شعر ۲۵ نمبرات

	ولی دکنی، خواجہ میر درد، علامہ اقبال، شاد عظیم آبادی، جگر مراد آبادی، حکیم منظور کی دودو غزلیں	۱	
مثنوی	میر حسن	داستان تباہ ہونے کی شہزادے کے غم میں (سحرالبیان)	۲
نظم	نظیر اکبر آبادی	بخارا نامہ	۳
نظم	اکبر آلہ آبادی	فرضی الطیفہ	۴
نظم	مولانا الطاف حسین حالی	خودستائی	۵
نظم	پنڈت برج زائن چکبست	خاک ہند	۶
نظم	اسرار الحق مجاز	رات اور ریل	۷
شلوکھ	ترجمہ نشاط انصاری	کلام شیخ العالم	۸

شعری صنعات مثلاً تضاد، تجنیس، تشبیہ، استعارہ

تخلیقی کام ۲۵ نمبرات

مضمون نگاری، خطوط نگاری، اشتہار سازی، اخباری رپورٹ،

ادبی تاریخ اور قواعد ۲۵ نمبرات

اردو زبان کا آغاز، فورٹ ولیم کالج، انجمن پنجاب،

قواعد؛ افعال، مرکبات، صفات، حروف