Plan of Written Examination

Final Plan of Written Examination

*All the aspirants are informed as under with respect to the written test to be conducted for the recruitment of Group-C post of **Laboratory Technician** under Advertisement No. 06 of 2024.*

1. *The Exam will be conducted in MCQ (Multiple Choice Questions) format. OMR sheets will be used for answering the questions.*

2. *The Exam would be of 2 hours 30 minutes duration.*

3. *The Exam will consist of two parts (Part A, Part B and Part C) as follows:-*

*(a) **Part A:-** Qualifying test of Punjabi Language equivalent to Matriculation standard as per Notification No. G.S.R.72 / Const. / Art.309/Amd.(22)/2022, dated:28.10.2022.*

Part	Topic	No. of Questions	Marks (Each Question carries 1 mark)	Type of Questions
A	Punjabi (Qualifying Nature) (Annexure-1)	50	50	MCQs (Multiple Choice Questions)

Note:- There will be no negative marking in Part-A.

*(b) **Part 'B' and Part 'C' combined will be evaluated only if a candidate scores minimum 50% marks (i.e 25 marks) in Part 'A'.***

Part	Topic	No. of Questions	Marks (Each Question carries 1 mark)	Type of Questions
B	Questions from General Knowledge and Current Affairs, Punjab History and Culture, Logical Reasoning and Mental ability, Punjabi, English, ICT, (Annexure-2)	40	40	MCQs (Multiple Choice Questions)
C	Questions from the Subject (Annexure-3)	60	60	MCQs (Multiple Choice Questions)
Total		100	100	

Note:-(i) There will be negative marking in Part B and Part C,Each question carries 1 mark. For every wrong answer, 1/4th mark i.e. 0.25 marks would be deducted. The question(s) not attempted will receive no credit or discredit.

(ii) The merit list of only such candidates, who qualify Part-'A' will be prepared on the basis of marks secured by candidate in Part-B and Part-C

4. Tentative syllabus for the written examination for the the recruitment of Group-C post of Laboratory Technician Advertisement No. 06 of 2024 is annexed at Annexure-1 and Annexure-2 and Annexure-3

Annexure-1 (Punjabi Syllabus)

Part-A (Punjabi Qualifying Exam)

1. ਜੀਵਨੀ ਅਤੇ ਰਚਨਾਵਾਂ ਨਾਲ ਸਬੰਧਤ ਪ੍ਰਸ਼ਨ:-

   ਸ਼੍ਰੀ ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਜੀ, ਸ਼੍ਰੀ ਗੁਰੂ ਅੰਗਦ ਦੇਵ ਜੀ, ਸ਼੍ਰੀ ਗੁਰੂ ਰਾਮਦਾਸ ਜੀ,

   ਸ਼੍ਰੀ ਗੁਰੂ ਅਰਜਨ ਦੇਵ ਜੀ, ਸ਼੍ਰੀ ਗੁਰੂ ਤੇਗ ਬਹਾਦਰ ਜੀ, ਸ਼੍ਰੀ ਗੁਰੂ ਗੋਬਿੰਦ ਸਿੰਘ ਜੀ।

2. ਵਿਰੋਧਾਰਥਕ ਸ਼ਬਦ, ਸਮਾਨਾਰਥਕ ਸ਼ਬਦ।

3. ਮੁਹਾਵਰੇ।

4. ਅਖਾਣ।

5. ਸਬਦ ਦੇ ਭੇਦ।

6. ਅਗੇਤਰ/ਪਿਛੇਤਰ।

7. ਵਚਨ ਬਦਲੋ ਤੇ ਲਿੰਗ ਬਦਲੋ।

8. ਵਿਸ਼ਰਾਮ ਚਿੰਨ੍ਹ।

9. ਸ਼ਬਦਾਂ / ਵਾਕਾਂ ਨੂੰ ਸ਼ੁੱਧ ਕਰਕੇ ਲਿਖੋ।

10. ਅੰਗਰੇਜ਼ੀ ਸ਼ਬਦਾਂ ਦਾ ਪੰਜਾਬੀ ਵਿੱਚ ਸ਼ੁੱਧ ਰੂਪ।

11. ਅੰਕਾਂ, ਮਹੀਨੇ, ਦਿਨਾਂ ਦਾ ਸ਼ੁੱਧ ਪੰਜਾਬੀ ਰੂਪ।

12. ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਨਾਲ ਸਬੰਧਤ ਪ੍ਰਸ਼ਨ।

13. ਪੰਜਾਬ ਦੇ ਇਤਿਹਾਸ ਨਾਲ ਸਬੰਧਤ ਪ੍ਰਸ਼ਨ।

14. ਪੰਜਾਬ ਦੇ ਸਭਿਆਚਾਰ ਨਾਲ ਸਬੰਧਤ ਪ੍ਰਸ਼ਨ।

Annexure-2

Part B - General Knowledge, *Punjab History and Culture,* Logical Reasoning Mental Ability, Punjabi, English and ICT.

Sr. No.	*Indicative Contents of Syllabus*	*Weightage (Approx.)*
1.	***General Knowledge and Current affairs of National and International importance including:*** *(i) Polity issues,* *(ii) Environment issues,* *(iii) Current Affairs,* *(iv) Science and Technology,* *(v) Economic issues,* *(vi) History of India with special reference to Indian freedom struggle movement.* *(vii) Sports,* *(viii) Cinema and Literature.* *(ix) Geography*	*10*
2.	***Punjab History and Culture:-*** *Physical features of Punjab and its ancient history. Social, religious and economic life in Punjab. Development of Language & literature and Arts in Punjab, Social and culture of Punjab during Afgan/Mughal Rule, Bhakti Movement, Sufism, Teachings/History of Sikh Gurus and Saints in Punjab. Adi Granth, Sikh Rulers, Freedom movements of Punjab.*	*5*
3.	***Logical Reasoning & Mental Ability:*** *(i) Logical reasoning, analytical and mental ability.(05 Marks)* *(ii) Basic numerical skills, numbers, magnitudes, percentage, numerical relation appreciation. (03 Marks)* *(iii) Data analysis, Graphic presentation charts, tables, spreadsheets. (02 Marks)*	*10*
4.	***ਪੰਜਾਬੀ:-*** ਸ਼ੁੱਧ-ਅਸ਼ੁੱਧ, ਸ਼ਬਦਜੋੜ, ਅਗੇਤਰ ਅਤੇ ਪਿਛੇਤਰ, ਸਮਾਨਾਰਥਕ/ਵਿਰੋਧੀਸ਼ਬਦ, ਨਾਂਵ, ਪੜਨਾਂਵ ਅਤੇ ਕਿਰਿਆ ਦੀਆਂ ਕਿਸਮਾਂ ਤੇ ਸਹੀ ਵਰਤੋਂ, ਲਿੰਗ ਅਤੇ ਵਚਨ, ਪੰਜਾਬੀ ਅਖਾਣ ਤੇ ਮੁਹਾਵਰੇ, ਅੰਗਰੇਜੀ ਤੋਂ ਪੰਜਾਬੀ ਅਨੁਵਾਦ ਅਤੇ ਬਹੁਤੇ ਸ਼ਬਦਾਂ ਦੀ ਥਾਂ ਇੱਕ ਸ਼ਬਦ ਆਦਿ।	*5*
5.	***English:-*** *Basic Grammar, Subject and Verb, Adjectives and Adverbs, Synonyms, Antonyms, One Word Substitution, Fill in the Blanks, Correction in Sentences, Idioms and their meanings, Spell Checks, Adjectives, Articles, Prepositions, Direct and Indirect Speech, Active and Passive Voice, Correction in Sentences, etc.*	*5*
6.	***ICT:-*** *Basics of computers, Network & Internet, Use of office productivity tools Word, Excel, Spreadsheet & PowerPoint.*	*5*
	Maximum Marks	**40**

Annexure-3

Part-C(I)-Subject Syllabus (Laboratory Technician) (Fisheries Department)

Anatomy and Physiology

Skeletal system, Digestive system, Respiratory system, Cardio-vascular system, Excretory System, Reproductive System, Nervous System, Endocrine System of Fish and Shellfish.

Biochemistry

Introduction and scope of Biochemistry, cleaning and care of laboratory glass ware and equipments, preparation and storage of distilled water, analytical balance, calorimeter, spectrophotometer, pH Meter, flame photometer, S.I unit of measurement, Preservation and disposal of biological sample, Basic statistic- mean, median, modes, SD, CV, normal reference ranges. Acid and base, pH, buffer solution, indicator, standard solution, storage of chemicals, water electrolytes, acid base balance .

- Carbohydrate, Lipids, Proteins Amino acids, Nucleic Acids, Enzymes, Co-Enzymes , Amino acid, Vitamins, Mineral- classification, definition, biological role, deficiency state, functions.
- Glycolysis, TCA-cycle, Electron transport chain, Pentose Phosphate Pathway, Glyconeogenesis, Gluconeogenesis, Cori-cyle, Blood sugar and its regulation.
- Fatty acid, cholesterol, lipoproteins, purine ribonucleotide-biosynthesis utilization, ketone bodies formation and its utilization.
- Transamination, Deamination, Biological importance of catecholamine, GABA, Serotonin, Histamine, Melanin.
- Qualitative and Quantitative test for - Carbohydrates, lipids, proteins.
- Estimation of Serum electrolytes and bicarbonates Blood Sugar.

Radio Immuno Assay (RIA)

- Enzyme Link Immunosorbent Assay (ELISA)
- Chromatography (thin layer paper, gas, liquid Electrophoresis, (gel electrophoresis, liquid electrophoresis)

Microbiology

- Origin of microbial life - theory of spontaneous generation.
- Safety measures in microbiology
- Classifications and nomenclature of bacteria (five kingdom concept)
- Sterilization-Principle, methods, antiseptic, disinfect.
- General characteristic and anatomy of bacteria (shape, size, components)
- Growth and nutrition of bacteria, classification of bacteria on the basis of nutritional requirement, measurement of cell mass and factor affecting growth.
- Cultivation of microbes (Bacteria)
- Culture technique (media preparation and inoculation)
- Isolation of Pure culture (streak plate, spread plate , pours plate, serial dilution)
- Bacteriology, Normal Micro flora of human body, Germ theory of diseases, microbial infection (types, sources and transmission)

- Bacterial toxin (Endotoxin & exotoxin)
- Bacterial morphology, isolation, identification , pathogenicity , lab diagnosis
- Collection, preservation, transportation of clinical specimens for microbial investigation, bacteriological methods of examination of fish blood.
- Antibiotic sensitivity test (Disc diffusion and broth dilution methods)

Instruments & Glass ware :

- Autoclave , Incubator , Laminar Airflow , Hot air oven , Water bath , Vortex shaker ,
  Petri dish , Test tube , Screw cap tube , Glass spreader/L - rods , Pasteur pipettes .

Medical Mycology :

- Classification and nomenclature of fungi,
- General characteristics, structures, reproduction, cultivation
- Medically important Division of fungi
- Morphology, culture characteristics, Pathogenicity, Lab diagnosis of common pathogenic fungi

Immunology:

- Introduction, Antigens (Types and properties) Antibodies / Immuno globin types and properties), Antigen- antibody reactions and their applications (Agglutination, precipitation, complement fixation and neutralization tests)
- Immunity (Innate & Acquired)
- Immunodeficiency diseases

Medical Virology:

- Classification, nomenclature, general characteristics (Morphology , chemical , biological properties and multiplication)
- Cultivation of viruses (cell culture and animals)
- Bacteriophages (lytic and lysogenic cycles)
- Morphology , Cultural characteristics , Pathogenicity

Molecular Biology:

- DNA & RNA
- Isolation of DNA (Genomic & Plasmid)
- Plasmids (types and Importance)
  Principles , methods and application of
- ELISA , Immunoflourescence test , Western Blot
- PCR

Haematology :

- Introduction to haematology
- Blood components , collection , anticoagulants , preparation of smears & quality
- Haemoglobin, TLC, DLC with absolute count, WBC, Red cell indices, Reticulocytes (methods of estimation , clinical significant)
- RBC - structure , erythropoietin , functions
- WBC - Physiology , pathological variation

- Platelets - functions, purpuras , investigation of disorders , thrombocytosis , thrombocytopenia
- Staining- Leishman's stain, MGG, Giemsa's, PAS, Sudan B-Blcak, Iron, Fats, Nap Acid Phosphates, Esterase (Principle, composition, methods & results)

Histopathology-Basic & Technique:

- Cells and tissues - definition, cells and its organelles, function, cell cycle, mitosis meiosis.
- Histology of different systems & Organs-Respiratory system, Alimentary system Excretory systems, Reproductive system (male & female), Endocrine system.

Cytology (Basic, Technique)

- Definition of cytology, material of operation and establishment of cytology laboratory, role of cytology in the diagnosis, branches of cytology.
- Quality controls (internal & external definition, methods, advantage.