



PUNJAB PUBLIC SERVICE COMMISSION

BARADARI GARDEN, PATIALA- 147001

WEBSITE : <http://ppsc.gov.in>

PUBLIC NOTICE

RECRUITMENT TO 23 POSTS OF WAREHOUSE MANAGER (GROUP-B) IN PUNJAB STATE WAREHOUSING CORPORATION UNDER THE DEPARTMENT OF AGRICULTURE & FARMER WELFARE, GOVERNMENT OF PUNJAB.

1. With reference to advertisement No. 20224 published on 09.05.2022 for the ibid posts, the commission has decided to **revise pattern and the syllabus** for the ibid posts.
2. The **revised pattern** for the written competitive examination as mentioned in clause 6.2 of "General Information for the candidates" shall be as follows:

Sr. No.	Topic	No. of Questions	Marks (Each Question carries 4 Marks)	Type of Questions
1	Questions from the subject (Part A of Syllabus)	90	360	MCQs (Multiple Choice Questions)
2	Questions from General Knowledge & Current Affairs (Part B of Syllabus)	10	40	
3	Questions from General Mental Ability, Logical Reasoning & Quantitative Aptitude (Part C of Syllabus)	10	40	
4	Punjabi (Part D of Syllabus)	10	40	
	Total	120	480	

3. The revised syllabus for the ibid posts is annexed as **Annexure –A**.
4. The Procedure of Selection will remain same as mentioned in Clause 6.1 of the General Information.
5. All other conditions such as reservation of the posts, age, eligibility, essential qualification, etc. of the advertisement shall remain same as mentioned in "General Information for the Candidates".

Dated : 02/03/2023

Sd/-
Secretary (Examinations)
Punjab Public Service Commission
Patiala

ANNEXURE (A)**SYLLABUS****PART-A (SUBJECT)****1. Quality Standards of Agri-produce & its Estimation**

Post-harvest grain loss assessment methods, packaging and storage of food products. Effects of moisture, temperature and industrial processes on nutritional value of foods. Biochemical and microbiological changes during ripening, storage and processing of cereals, oil seeds, fruits, vegetables, milk, meat and their products. BIS and FCI standards for procurement of grains with specifications and refractions using standard analytical and rapid methods: Foreign matter, moisture content, broken and damaged grains. Biochemical separation methods and study of carbohydrates, lipids, proteins, vitamins, enzymes, co-enzymes, nucleic acid and essential oils. Types of micro-organisms, algae, fungi, bacteria and viruses.

2. Thermal and Environmental Control

Psychrometry: Thermodynamic properties of moist air, construction of psychrometric chart, psychrometric processes and applications. Drying theory: thin layer and deep bed drying, principle, drying models, moisture ratio, type of dryers: tray dryer, hot air dryer, fluidized bed dryer, freeze dryer, solar dryer, drying methods: constant and falling rate periods, Cooling load calculations for biological materials, Instruments for measurement and control of temperature and moisture; Thermal insulation materials for environmental control systems.

3. Storage Insect Pests and its control

Introduction, history and concepts of storage entomology. Post-harvest losses. Factors responsible for grain losses. Important pests namely insects, mites, rodents, birds and micro-organisms associated with stored grains and agricultural products. Association of stored grain insects with fungi and mites, their systematic position, identification, distribution, host range, biology, nature and extent of damage. Sources of infestation. Type of losses in stored grains and their effect on quality including biochemical changes. Ecology of insect pests of stored commodities. Stored grain deterioration process. Type of storage structures. Ideal storage conditions. Management of rodent and bird pests. Preventive and curative measures for the management of insect pests of stored grains. Characteristics of pesticides, their use and precautions in their handling with special emphasis on fumigants. Integrated approaches to stored grain pest management.

4. Grain Conveying and Handling System

Flow Study: Flow through hoppers, openings and ducts, Physical factors influencing flow characteristics. Mechanics of bulk solids. Types of conveying systems: belt, chain, screw, roller, pneumatic conveyors and bucket elevators. Food packaging requirements, Packaging materials and packaging design for different food materials. Mechanical properties of packaging material, barrier properties; water vapour transmission rate and their calculations. Mass transfer in packaging systems. Packages with view to transportation and storage of fresh and processed foods.

5. Storage Engineering

Storage requirements; Storage losses, factors/parameters influencing the shelf life of the stored product. Storage practices and structures (traditional and modern) for food grains; design of

bulk storage and aeration system; analysis of heat moisture and gas transfer in bulk storage structures; bag storage structures, their design and management; storage of perishables – ventilated, refrigerated, cold and controlled atmosphere storage systems and their design; BIS standards on practices, equipment and design of storage structures and systems for food grains and other commodities. Quality management practices during grain storage. Production, distribution and storage capacity estimate models.

6. Warehousing and Inventory Management

Introduction, Objectives, Meaning of a Warehouse, Need for warehousing management, Evolution of warehousing, Role of a warehouse manager, Functions of Warehouses, Types of Warehouses, Warehouse layout and design; Physical control and security; Activity in warehouse / Safety, security, hygiene in warehouse, Warehousing Cost, Warehousing Strategies, Warehousing Management Systems, Benefits of warehousing, Role of government in warehousing, Characteristics of an ideal warehouse, Storing products in a warehouse, Warehouse Structure, Warehouse Operations, Equipment Used for a Warehouse. Warehousing – the way forward

7. Engineering properties of Bio-materials

Importance of engineering properties of biological materials in design of crop processing equipment; physical characteristics-shape, size, volume, sphericity, roundness, roundness ratio, shape factor, density true and apparent, porosity, angle of repose, co-efficient of internal and external frictions; optical properties-colour and gloss; Dielectric and electrical properties-dielectric constant, dielectric loss tangent, electrical conductivity; Thermal properties-thermal conductivity, thermal diffusivity, specific heat, heat of respiration; Aerodynamic properties-terminal velocity, drag-coefficient.

8. Risk Management in Warehouse

Introduction to risk management, Impact and importance of risk, Difference between risk and uncertainty, Type of risks and risk classification system, Internal and external factors affecting risks, Risk management: Principle and objectives, Risk management standards: Scope, COSO ERM cube and features, Steps involved in risk management, Strategies, guidelines and protocols involved in risk management, Risk management documentation: Reports and recommendations, Risk response and improvement plans, Risk performance and certificate reports, Risk management responsibilities: Allocation, Internal audit and role of Chief risk officer (CRO), Risk management architecture and structure, Risk analysis and estimation methods, Preventive and precautionary measures, Control measures including insurance at warehouse, Risk minimization, Risk control techniques, Risk training and communication.

PART-B

General Knowledge & Current Affairs

General Knowledge and Current affairs of National and International importance including:

- (i) Economic issues
- (ii) Polity issues
- (iii) Environment issues
- (iv) Science and Technology
- (v) Any other current issues
- (vi) (a) History of India with special reference to Indian freedom struggle movement
(b) History of Punjab- 14th century onwards

PART-C

General Mental Ability, Logical Reasoning & Quantitative Aptitude

- (i) Logical reasoning , analytical and mental ability, etc.
- (ii) Basic numerical skills, numbers, magnitudes, percentage, numerical relation appreciation, etc.
- (iii) Data analysis, Graphic presentation charts, tables, spreadsheets, etc.

PART-D (PUNJABI)

1. ਬਹੁਅਰਥਕ ਸ਼ਬਦ, ਵਿਰੋਧਾਰਥਕ ਸ਼ਬਦ, ਸਮਾਨਾਰਥਕ ਸ਼ਬਦ ਅਤੇ ਬਹੁਤੇ ਸ਼ਬਦਾਂ ਦੀ ਥਾਂ ਇੱਕ ਸ਼ਬਦ।
2. ਪੰਜਾਬੀ ਅਖਾਣ ਅਤੇ ਮੁਹਾਵਰੇ।
3. ਸ਼ੁੱਧ ਅਸ਼ੁੱਧ, ਸ਼ਬਦਜੋੜ।
4. ਸ਼ਬਦ ਦੇ ਭੇਦ।
5. ਅਗੇਤਰ/ਪਿਛੇਤਰ।
6. ਲਿੰਗ ਅਤੇ ਵਚਨ ਬਦਲੋ।
7. ਵਿਸ਼ਰਾਮ ਚਿੰਨ।
8. ਵਿਆਕਰਨ।
9. ਅੰਗਰੇਜ਼ੀ ਸ਼ਬਦਾਂ ਅਤੇ ਵਾਕਾਂ ਦਾ ਪੰਜਾਬੀ ਵਿੱਚ ਸ਼ੁੱਧ ਰੂਪ।
10. ਅੰਕਾਂ, ਮਹੀਨੇ, ਦਿਨਾਂ ਦਾ ਸ਼ੁੱਧ ਪੰਜਾਬੀ ਰੂਪ।
11. ਭਾਸ਼ਾ ਅਤੇ ਪੰਜਾਬੀ ਭਾਸ਼ਾ।
12. ਸ਼ਬਦ ਬੋਧ।
13. ਪੰਜਾਬ ਦੇ ਇਤਿਹਾਸ ਨਾਲ ਸਬੰਧਤ ਪ੍ਰਸ਼ਨ।
14. ਪੰਜਾਬ ਦੇ ਮੇਲੇ, ਤਿਉਹਾਰ ਅਤੇ ਸਭਿਆਚਾਰ ਨਾਲ ਸਬੰਧਤ ਪ੍ਰਸ਼ਨ।
15. ਅਣਡਿੱਠੇ ਪੈਰੇ ਵਿਚੋਂ ਪ੍ਰਸ਼ਨ।