



# PUNJAB AGRO INDUSTRIES CORPORATION LIMITED

2-A, Sector 28-A, Madhya Marg, Chandigarh

## SYLLABUS FOR ENTRANCE TEST FOR THE POST OF SUB-INSPECTOR (PRESENTLY FERTILIZER CLERK)

### **Section A: GENERAL (60 MARKS)**

Analytical Ability, Logical, quantitative and visual-spatial reasoning  
Computer skills; computer applications and proficiency in using windows; MS office etc.  
General Knowledge/current affairs.  
General Punjabi up to Matric standard  
General English (Up to Graduation standard)

### **Section B: PROFESSIONAL (40 MARKS)**

***Agriculture, its importance in national economy.*** Factors determining agro-ecological zones and geographic distribution of crop plants. Importance of crop plants, cultural practices for cereal, pulses, oilseed, fibre, sugar, tuber and fodder crops and scientific basis for these crop rotations, multiple and relay cropping, intercropping and mixed cropping.

***Soil as medium of plant growth and its composition***, mineral and organic constituents of the soil and their role in crop production; chemical, physical and microbiological properties of soils. Essential plant nutrients (macro and micro)–their functions, occurrence, cycling in soils Principles of soil fertility and its evaluation for judicious fertilizer use. Organic manures and bio-fertilizers, inorganic fertilizers, integrated nutrient management. Soil conservation, integrated watershed management, soil erosion and its management

***Principles of plant physiology*** with reference to plant nutrition, absorption, translocation, and metabolism of nutrients. Diagnosis of nutrient deficiencies and their amelioration photosynthesis and respiration, growth and development, auxins and hormones in plant growth.

***Cell and cell organelles.*** Cell division. Reproductive cycle, Principles of genetics, gene-interaction, sex determination, linkage and recombination, mutation, extra chromosomal inheritance, polyploidy. Origin and domestication of crop plants. Genetic resources-conservation and utilization. Floral biology in relation to selfing and crossing, role of genetic engineering and biotechnology in crop improvement, genetically modified crop plants.

**Genetic basis of plant breeding** pure line selection, mass selection, male sterility and incompatibility and their use in plant breeding. Pedigree selection, back-cross method of selection. Heterosis and its exploitation. Development of hybrids, composites and synthetic, important varieties, hybrids, composites and synthetic of major crops. Seeds and seed-production techniques.

**Important fruit and vegetable crops of India**, method of propagation–Sexual and asexual. Package and practices and their scientific basis. Crop rotation, intercropping, companion crops, role of fruits and vegetables in human nutrition, post-harvest handling and processing of fruits and vegetables. Landscaping and ornamental horticulture, commercial floriculture. Medicinal and aromatic plants. Serious pests and diseases affecting major crops. Principles of control of crop pests and diseases, integrated management. Proper use and maintenance of plant protection equipment.

**Principles of economics as applied to agriculture.** Farm planning and optimum resource–use efficiency and maximising income and employment. Farm systems and their spatial distribution, their significant roles in regional economic development, intellectual property rights (IPR) issues, WTO issues and its impact on agriculture.