

Syllabus and Scheme of Examination

for

University Agriculture Entrance Test (UAET)

2023-24



Rani Durgavati Vishwavidyalaya,
Jabalpur 482001, Madhya Pradesh,
India

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रानी दुर्गावती विश्वविद्यालय जबलपुर
University Agriculture Entrance Test (UAET) 2023

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परीक्षा संचालन एवं प्रवेश नियम पुस्तिका

ऑनलाइन आवेदन-पत्र	
भरने की प्रारम्भ तिथि :	भरने की अंतिम तिथि
आवेदन पत्र में संशोधन करने की प्रारम्भ तिथि	आवेदन पत्र में संशोधन करने की अंतिम तिथि
परीक्षा दिनांक व दिन	
परीक्षा शुल्क*	
अनारक्षित अभ्यर्थियों के लिये	रु 500/-
अनुसूचित जाति/अनुसूचित जनजाति/अन्य पिछड़ा वर्ग/ निःशक्तजन अभ्यर्थियों के लिये	रु 250/-

* ऑनलाइन आवेदन- बी एस सी. (ऑनर्स) एग्रीकल्चर में प्रवेश पाने के इच्छुक योग्य उम्मीदवारों को ऑनलाइन भुगतान के साथ नियत तिथि पर या उससे पहले ऑनलाइन प्रक्रिया के माध्यम से आवेदन रानी दुर्गावती विश्वविद्यालय जबलपुर के वेबसाइट <http://www.rdunijbp.in> से जमा करना होगा।

ऑनलाइन परीक्षा पद्धति समय सारणी

परीक्षा दिनांक एवं दिन	परीक्षा की पाती	अभ्यर्थियों के लिये रिपोर्टिंग समय	महत्वपूर्ण निर्देश पढ़ने का समय	उत्तर अंकित का समय
	प्रथम			

टिप्पणी :-

1. अभ्यर्थी का आधार फंजीपन अनिवार्य है।
2. आयोजित परीक्षाओं में मूल फोटोयुक्त पहचान पत्र लाना अनिवार्य होगा। मूल फोटोयुक्त पहचान पत्र के रूप में अभ्यर्थी मतदाता पहचान पत्र, पैनकार्ड, आधार कार्ड, ड्रायविंग लायसेंस, तथा पारामपोर्ट में से कोई एक को चयनित कर सकता है। यूआईडीएआई (UIDAI) के द्वारा सत्यापित (Verify) होने पर ही ई आधार मान्य होगा। मूल फोटोयुक्त पहचान पत्र के अभाव में अभ्यर्थी को परीक्षा में सम्मिलित होने से वंचित किया जाएगा।











3. अभ्यर्थी को नियम पुस्तिका में विनिश्चित मूल परिचय पत्र के अतिरिक्त अपना आधार कार्ड / ई आधार कार्ड आधार कार्ड की छायाप्रति आधार नंबर / आधार VID की जानकारी लाना अनिवार्य है।
4. परीक्षा में प्रवेश के समय एवं परीक्षा के दौरान बहुस्तरीय बायोमेट्रिक सत्यापन अनिवार्य है। परीक्षार्थियों को परीक्षा में रिपोर्टिंग समय तक परीक्षा केन्द्र में प्रवेश की अनुमति होगी। इसके पश्चात विलम्ब से आने वाले अभ्यर्थियों को प्रवेश की पात्रता नहीं होगी।
5. परीक्षा कक्ष में इलेक्ट्रॉनिक डिवाइस यथा डिजिटल घड़ी मोबाइल फोन, कैल्कुलेटर लॉग टेबल एवं नकल पर्चा आदि का उपयोग भूषित वर्जित है।
6. प्रत्येक प्रश्न में 4 विकल्प होंगे जिसमें छात्र को एक सही विकल्प चुनना होगा।
7. प्रत्येक प्रश्न 1 अंक का होगा। इसमें किसी भी प्रकार का ऋणात्मक मूल्यांकन (Negative marking) नहीं होगी।
8. छात्रों को अपने उत्तर OMR sheet (Optical Mark Recognition) में अंकित करना होगा।
9. प्रवेश परीक्षा समाप्त होने पर प्रत्येक छात्र को प्रश्न पत्र एवं OMR Sheet शिक्षक को सौंपना होगा।
10. OMR Sheet को किसी भी तरीके से मोड़ना या क्षतिग्रस्त नहीं किया जायेगा। साथ ही OMR Sheet में over writing नहीं होना चाहिए।
11. छात्र-छात्राये OMR Sheet पर काले इंक बॉल पेन से सही उत्तर चिन्हित करेंगे।
12. किसी भी परीक्षार्थी को परीक्षा प्रारंभ होने के पश्चात परीक्षा समाप्ति तक परीक्षा कक्ष छोड़ने की अनुमति नहीं होगी।








पाठ्यक्रम (SYLLABUS)

1- विज्ञान (Science): (Comprising Physics and Chemistry)

(A) PHYSICS

Unit and dimensions, dimensional analysis, S.I. Units, Motion in two dimensions, Cases of uniform velocity and uniform acceleration, General relation among position and velocity, Uniform circular motion, Force and inertia, Newton's Laws of motion, Conservation of momentum and energy, Static and kinetic friction, Work energy and power, Elastic collisions, Potential energy, gravitational Potential energy and its angular conversion to kinetic energy, Potential energy of a spring, Rigid body rotation and conservation of its momentum, Moment of inertia, theorems of parallel and perpendicular axis (Moment of inertia of uniform ring, disc, thin rod and cylinder only)

Acceleration due to gravity and its variation, Universal law of gravitation, geostationary satellites, escape velocity

Hooke's law, Young's modulus, shear and bulk modulus, surface energy and surface tension, kinetic theory of gases, gas laws, kinetic energy and temperature.

Specific heats at constant volume and constant pressure, mechanical equivalent of heat, isothermal and adiabatic processes.

Heat conduction in one dimension, convection and radiation, Stefan's Law and Newton's law of cooling

Periodic motion, Simple harmonic motion, Oscillations due to spring, Wave motion, principle of superposition, Progressive and stationary waves, beats and Doppler effect.

Wave nature of light, Interference, Young's double slit experiment, Velocity of light and Doppler's effect in light.

Reflection, refraction, total internal reflection, curved mirrors, Lenses, mirror and lens formulae, Dispersion in prism, absorption and emission spectra.

The human eye, defects of vision, magnification and resolving power of telescope and microscope " e " and " e/m " for an electron, Einstein's photoelectric equation, photocells

Bohr model of the atom, Hydrogen spectrum, Composition of nucleus, atomic masses and isotopes, radioactivity, laws of radio active decay, decay constant, half life and mean life, Mass-energy relation, fission, X-Ray: Properties and uses



Elementary ideas of conductor, semi-conductor and insulator, intrinsic and extrinsic semi conductors, p-n Junction as a rectifier.

Bar magnet, lines of force, torque on a bar magnet due to magnetic field, earth's magnetic field, tangent galvanometer, vibration magnetometer.

Coulomb's law of electrostatic, dielectric constant, electric field and potential due to a point charge, dipole, dipole field, Gauss's law in a simple geometrics.

Electrostatic potential, capacitance, parallel plate and spherical capacitors capacitors in series and parallel, energy of a capacitor.

Electric current, Ohm's law, Kirchhoffs laws, resistances in series and parallel, temperature dependence of resistance, Wheatstone bridge, potentiometer.

Measurement of voltages as currents.

Electric power, heating effects of currents, chemical effects and law of electrolysis, thermoelectricity, Biot Savan law, Magnetic fields due to a straight wire circular loop and solenoid.

Force on a moving charge in a magnetic field (Lorentz force), magnetic moment of a current loop, effect of a uniform magnetic field of a current loop, forces between two currents, moving coil, galvanometer, ammeter and voltmeter.

Electromagnetic induction induced emf, Faradays law, Lenz's law, self and mutual inductance, alternating currents, impedance and reactance, growth and decay of current in L-R circuit, elementary idea of dynamo and transformer.

(B) CHEMISTRY

GENERAL AND PHYSICAL CHEMISTRY

1. Structure of Atom: Constitution of nucleus: Bohr's atom model: quantum numbers Aufbau principle: electronic configuration of elements (upto-Kr) de-Broglie relation, shapes of orbitals.
2. Chemical Bond: Electrovalent, covalent and coordinate bonds, hybridisation (sp): hydrogen bond: shapes of molecules (VSEPR theory): bond polarity, resonance, Elements of VBT and MOT.
3. Solutions: Modes of expressing concentrations of solutions: Types of solutions, Raoult's law of colligative properties, non-ideal solution, abnormal molecular weights.
4. Solid State: Crystal lattices, unit cells, Structure of ionic compounds: close packed structure ionic radii, imperfections (Point defects): Properties of solids.

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- 5 Nuclear chemistry Radio active radiations: half-life, radioactive decay, group displacement Law structure and properties of nucleus. Nuclear reaction, disintegration series artificial transmutation; isotopes and their uses; Radio carbon dating
- 6 Chemical Equilibrium: Chemical equilibrium. Law of mass action K_p and K_c Le Chatelier principle and its applications.
- 7 Ionic Equilibria in solutions. Solubility product, common ion effect, theories of acids and base hydrolysis of salts; pH, buffers.
- 8 Thermochemistry and Thermodynamics Energy changes during a chemical reaction intrinsic energy enthalpy. First Law of thermodynamics: Hess's law Heats of reactions. Second law of thermodynamics: entropy; free energy; spontaneity of a chemical reaction; free energy change and chemical equilibrium, free energy as energy available for useful work.
9. Chemical Kinetic: Rate of a reaction, factors affecting the rate, rate constant rate expression, order of reaction, first order rate constant expression and characteristics, Arrhenius equation
- 10 Electrochemistry: Oxidation, Oxidation number and ion-electron methods Electrolytic conduction Faraday's laws; voltaic cell, electrode potentials, electromotive force, Gibbs's energy and cell potentials. Nernst equation, commercial cells, fuel cell, electrochemical theory of corrosion.
11. Surface chemistry. Colloids and Catalysis; Adsorption, Colloids (types preparation and properties). Emulsions, Micelles, Catalysis: Types and characteristics.

INORGANIC CHEMISTRY:

- 12 Principles of metallurgical operations: Furnaces, ore concentration, extraction, purification metallurgies of Na, Al, Fe, Cu, Ag, Zn and Pb and their properties.
13. Chemical periodicity: S.p.d. and f-block elements, periodic Table periodicity, atomic and ionic radii, valency, ionization energy, electron affinity electronegativity, metallic character
14. Comparative study of elements: Comparative study of the following families of elements: (i) Alkali metals (ii) Alkaline earth metals (iii) Nitrogen family (iv) Oxygen family (v) halogens (vi) Noble gases.
- 15 Transition metals: Electronic configuration of 3d-metal ions, oxidation states, other general characteristic properties, Potassium permanganate, potassium dichromate
- 16 Co-ordination compounds: Simple nomenclature, bonding and stability classification and bonding in organo metallica.
- 17 Chemical analysis: Chemistry involved is simple inorganic qualitative analysis calculations based on acid-base titrimetry.



ORGANIC CHEMISTRY:

18. Calculation of empirical and molecular formula of organic compounds
Nomenclature of organic compounds, common functional groups isomerism
Structure and shapes of alkanes, alkenes and benzene.
19. Preparation properties and uses of alkynes, alkenes, benzene petroleum,
cracking octane number, gasoline additives
20. Nomenclature, Physical chemical properties, correlation of physical
properties with structure properties and uses of haloalkanes, halobenzenes
alcohols and phenols. General ideas of some polyhalogen compounds viz
dichloroethanes, dichloroethers, chloroform, carbon tetrachloride, D.D.T,
benzene hexachloride.
21. Nomenclature, methods of preparation, Chemical properties correlations of
physical properties with structures and uses of ethers, aldehydes, ketones,
carboxylic acids and their derivatives. Brief account of the chemistry of
Cyanides isocyanides, amines and nitro compounds.
22. Polymers: Classification: Preparation and uses of common natural and
synthetic polymers.
23. Biomolecules: Classification, Structures and biological importance of
carbohydrates amino acids, peptides, proteins and enzymes, nucleic acids
and lipids.

2. गणित (MATHEMATICS)

1. **ALGEBRA:** Algebra of complex numbers. Graphical representation of
complex numbers modulus, and argument of complex numbers, conjugate of
a complex number, Triangle inequality, cube roots of unity. Arithmetic
geometric and harmonic progression, Arithmetic geometric and harmonic
means between two numbers. Sum of squares and cubes of first natural
numbers. Theory, geometric equation, relations between roots and
coefficients, quadratic expressions, quadratic equations in one variable.
Permutations and combinations. Binomial Theorem (any index) exponential
and logarithmic series, determinants upto third order and their order and their
elementary properties matrices types of matrices, adjoint and inverse of
matrix, elementary. Application in solving simultaneous equation upto three
variables.
2. **TRIGONOMETRY:** Trigonometry functions and their graphs, addition and
subtraction formulae, formulae involving multiple and sub multiple angles,
general solutions of trigonometrical equations. Relations between sides and
angles of a triangle. Solutions of triangles, inverse, trigonometrical functions,
height and distance (Simple Problems).



3. **CO-ORDINATE GEOMETRY OF TWO DIMENSIONS:** Rectangular cartesian coordinates, straight line, pair to straight lines, distance of a point from a line, angle between two lines.
Circle tangents and normals, system of circles, Conic section, Parabola, Ellipse and Hyperbola in standard forms with elementary properties, tangents and normals.
4. **CO-ORDINATE GEOMETRY OF THREE DIMENSIONS:** Rectangular co-ordinate system, Direction cosines and direction ratios, equation of plane in standard forms, Perpendicular distance from a point, equation of a line angle between two lines.
5. **VECTOR ALGEBRA:** Definition of vector, addition of vector, components in three dimensional space, Scalar and vector products, Triple products, simple application in geometry and mechanics.
6. **DIFFERENTIAL CALCULUS:** Function, polynomial, rational trigonometric, logarithmic and exponential, inverse functions, Limit continuity and differentiability of functions, differentiation of rational, trigonometric and exponential functions, Application of derivative in elementary problems in mechanics, increasing and decreasing functions, Maxima and Minima of function of one variable, Rolle's theorem and mean value theorem.
7. **INTEGRAL CALCULUS:** Integration as the inverse process of differentiation, Integration by parts, By substitution and by partial fraction, definite integral, Areas under simple curves.
8. **DIFFERENTIAL EQUATIONS:** Formulation of differential equation, ordered degree, Solution of differential equations by separation of variable method, Homogeneous form, Linear differential equation of first order.
9. **STATISTICS:** Probability, addition and multiplication laws, Conditional probability, Binomial distribution, simple problems in correlation and regression.
11. **NUMERICAL METHODS:** Solution of equation by the methods of bisection, false position and Newton-Raphson, Numerical integration by trapezoidal and Simpson's Rule.
12. **LINEAR PROGRAMMING:** Definition and formation of linear programming problems, solution by graphical method.



3. BIOLOGY (Comprising Botany & Zoology)

(A) वनस्पतिशास्त्र (BOTANY)

Structural organization of cell, cell theory. Light and Electron Microscopic view of cell. Structure and functions of cell organelles: Nucleus, Mitochondria, Chloroplast, Endoplasmic reticulum, Golgi complex, lysosome, microbodies, microfilaments, Ribosomes, Centrioles and Plasmids. Eukaryotic Chromosome (Morphology), cell and plasma membrane. Difference between plant and animal cell. Division, cell cycle, significance of mitosis and meiosis.

Mendel's Laws of inheritance, Monohybrid and dihybrid cross, linkage and crossing over of genetic material. DNA replication, genetic code, transcription and translation, gene regulation.

Difference between prokaryote and Eukaryotes. Structure, reproduction and economic importance of viruses: Mycoplasma, Bacteriophage, Cyanobacteria (Nostoc) and Bacteria.

Five Kingdom classification, Binomial Nomenclature. External morphology and life cycle of Spirogyra, Mucor, Funaria, Selaginella and Pinus.

Elementary knowledge of microsporogenesis, megasporogenesis. Fertilisation, endosperm and embryo development in Angiosperms.

Tissue and tissue systems, meristematic and permanent tissue. Mineral nutrition: essential elements and their functions: uptake of minerals, transport of water and solutes. Transpiration, Photosynthesis and Respiration: Importance, mechanism and factors affecting these processes. Photorespiration.

Enzymes and growth hormones with reference to their classification. Chemical nature, mode of action, importance. Elementary idea of photoperiodism and phytochrome.

Ecosystem: Structures and function. Major ecosystems i.e. lake and Forest. Food chain, Food Web and Energy flow. Ecological crisis. Role of man in polluting Environment - Air, Water and Soil.

Role of plants in human welfare. A general knowledge of plant products of economic value: Drugs, Fibers, Cereals.

Wheat and Rice, Pulses (gram), Oil seeds (Ground nut), Sugarcane, Cotton and Petroleum.

Food preservation: Methods and importance



Principle of plant breeding and its role in improvement of crops. Biotechnology: scope and importance in Agriculture and industries manufacture of cheese, Yoghurt Alcohol Antibiotics.

(B) प्राणीशास्त्र (Zoology)

MULTICELLULARITY-STRUCTURE AND FUNCTION OF ANIMAL LIFE:

- Structure and function of Animal tissues. Epithelial, Connective Muscular, Skeletal and Nerve.
- Histology of Mammalian organs - Stomach, Intestine, Liver, Kidney, Lung, Testes and Ovary.
- Structure and Physiology of different organ systems of Human body. Skin, Digestive system, Respiratory System, Circulatory system.
- Skeleton, Joints, Muscles on the basis of movement Receptors.
- Endocrine system with special reference to various Endocrine glands of man and Hormonal co-ordination.
- Vitamin & minerals (source and disorders due to deficiencies).

DEVELOPMENTAL BIOLOGY AND GENETICS:

- Female reproductive cycles in mammals Gametogenesis along with structure of sperm and ovum Types of eggs, Fertilization, cleavage types of cleavage and blastula development of mammals upto three germinal layers, Foetal membrane structure and functions.
- Growth, repair and ageing, amniocentesis.
- Chromosomes, Types of chromosome, Human karyotype and chromosomal abnormalities and syndromes, Hormonal, Chromosomal and Genic Balance theory of sex determination Sex linkage and sex linked inheritance in Man Blood Group and their significance, Blood Bank.
- Tissue culture, Genetic Engineering (Brief idea) Mutation gene mutation.
- Human population natality Mortality, Sex ratio Population explosion, dynamics of human life with respect to food supply, housing health and standard of living impact of population problems and their control.

TAXONOMY EVOLUTION ECONOMIC ZOOLOGY:

- Classification Binomial and trinomial nomenclature, Basic features of classification, Classification of different animal phyla upto classes with characters and suitable examples.
- Origin of life, Theories of organic evolution-Darwin, Lamarck, Synthetic Evidence of organic evolution, Human Evolution.
- Economic Zoology Sericulture, Apiculture, Lac culture, Poultry, Fishery and pearl industry.



- Protozoan disease in relation to man. Insect carrying diseases in relation to man.
- Cancer-types of cancer and cancer cell. Communicable diseases (Hepatitis, AIDS) STD, Immune Response, Vaccines and antisera allergies.
- Smoking, alcoholism, and drug addiction, symptoms and control
- Wild conservation.
- Pesticides- Uses, advantages and hazards.

4. कृषि के लिए उपयोगी विज्ञान एवं गणित तत्व [ELEMENTS OF SCIENCE AND MATHEMATICS]

(USE FOR AGRICULTURE) AG.-1

1) AGRICULTURE PHYSICS:

1. Principle of Archimedes. Floating bodies density and relative density determination of R.D. by Hydrometers.
2. Atmospheric pressure. Fortins barometer and its relation to weather condition manometer
3. Pumps-Force and vacuum pumps. syphon suction pumps
4. Friction - Laws of Friction. angle of friction. coefficient of friction and its determination. advantages and disadvantages of friction.
5. Machine - simple machines such as plane, lever, pulley. Simple wheel, their construction and working mechanical advantages. Velocity ratio efficiency of machine
6. Gravitation and gravity. Relation between 'G' and 'g' simple harmonic motion simple pendulum law of gravitation.
7. Unit of heat. Specific heat, thermal capacity, water equivalent of heat, determination of Specific heat of solid and liquid. Latent heat, determination of latent heat of ice and steam.
8. Transmission of Heat-Conduction, Convection and Radiation. Conductivity good and bad conductor. New-ton's law of cooling-simple idea
9. Light. Rectilinear propagation of light. Shadow and eclipse. pinhole camera. reflection through Prism. Dispersion of light. dispersive power spectrum, their type, spectrometer
10. Optical instruments, Human eye, its defects, photographic camera simple and compound microscope Telescope.
11. Magnetism. Magnetic Field. Intensity of magnetic field. lines of forces. Neutral point, Couple acting on magnet placed in a uniform magnetic field. Magnetic movement of magnet. tangent law and its limitation.
12. Electric charge- electric potential, electric field and its intensity due to a point, potential inside a conductor.
13. Electrical capacity its unit, its value for a Spherical conductor, principle of condensers capacity of spherical and parallel plate condenser

14. Ohm's law, Resistance, grouping of resistance, electromotive force and potential difference. Potentiometer its principle, comparison of EMF of two cells by potentiometer.
15. Elementary idea of heating effect of current, Joule's law determination of J by Joules Calorimeter, elementary, idea of the house wiring electric iron, electric power and energy.

ii) AGRICULTURE CHEMISTRY:

1. **Atomic Structure:** Bohr's atomic model, Distribution of electrons according to Bohr- BoryRules Radioactivity and atomic disintegration.
2. **Chemical Bonds:** Characteristics of electrovalent, Covalent and Co-rodinate Bonds
3. **Ionic Theory:** Uses of ionisation, Solubility product, Hydrolysis, neutralisation, Ionic product of water, Determination of pH Buffer Solution, Nutritional importance of Soil pH
4. **Colloids:** Lyophilic and Lyophobic, properties of colloids, colloidal solutions, protective colloids, gold number, Soil colloids clay and humus.
5. Introduction of important minerals present in soil and their chemical composition.
6. **Chemical Fertilizers:** Manufacture of different fertilizers of N P.K. and their utilization Micronutrients
7. **Volumetric analysis:** Strength of solution, Normality, determination of equivalent weight of acid, base and salt.
8. Introduction to Organic Chemistry, Determination of empirical, molecular and structural formula of simple organic compounds.
9. Classification and nomenclature of organic compounds, Isomerism
10. Saturated and unsaturated Hydrocarbons, Mathane, Ethylene, Chemistry of gobar Gas.
11. Fermentation, ethyl alcohol, Aliphatic carboxylic acid-Acefic acid, Urea.
12. Oil and fats, extraction, Composition and properties, manufacture of soap, Vanaspati Ghee, use of oil in paints.
13. Elementary Biochemistry, Carbohydrates, proteins, Lipids, Vitamins and enzymes.

(iii) AGRICULTURE MATHEMATICS:

1. **Arithmetic Progression:** Definition, formula to find the nth term, Formula to find sum of an terms, Definition of arithmetic mean, Insertion of given number of mean between two given quantities, Finding of remaining quantity when any three of S, a d, n are given.



2. **Geometric Progression:** Definition, Formula to find the n th term, sum of n terms, geometric mean insertion of geometric means between two given Quantities. Finding or remaining quantity when any three of ks , a , n are given.
3. **Logarithms and Common Logarithms:** Definition of product division of number raised to any power characteristics of the logarithm of any number greater than unity. Characteristics of the Logarithm of a decimal fraction.
4. Trigonometrical functions of angles of any size and sign. Trigonometrical ratios of an angle $(90^\circ +)$ (180°) $(80^\circ +)$
5. Trigonometrical ratio of the sum and difference of two angles. Geometrical proof for $\sin(A+B)$ $\cos(A-B)$ product formula for $\sin(C \pm \sin D)$ $(C \pm \cos D)$
6. **Statistics:** Calculation of mean, mode, median and standard deviation, variance and mean deviation for grouped data using various formula.

(IV) AGRICULTURE, BOTANY, ZOOLOGY

1. **Plant Anatomy** (i) Root-Structure and Functions (ii) Stem-Structure and Functions (iii) Leaf Structure and Functions
2. **Agri Botany Zoology:** Classification of plants (1) Outline of classification of plants, (ii) Study of the following families: (a) Compositae (b) Leguminosae (c) Cucurbitac (d) Solanaceae (e) Mavaceae (f) Cruciferae (g) Gramineae
3. **Plant Breeding and Genetics:** (1) Definition of Genetics and plant breeding and role of Genetics in plant breeding (ii) Cell-its structure and cell division (iii) Principle of inheritance (iv) Self and cross pollinated crops. (v) Methods of breeding field crops.
4. **Plant Physiology:** (i) Respiration, types, function. (ii) Photosynthesis (iii) Transpirations (iv) Plant growth and development.
5. **Animal Kingdom:** (i) Classification of animal kingdom. (ii) Useful and harmful insects of agriculture: Silk worm, Honey bee, LAC insect, Termites, Grass hopper, grass caterpillar. Anatomy and physiology, elementary internal anatomy of grass hopper, earthworm and cockroach with reference to digestive, Respiratory and reproductive system.

5. अ) फसल उत्पादन एवं उद्यानशास्त्र

5. (A) CROP PRODUCTION AND HORTICULTURE] (AG.-2)

1. (i) Introduction and activities of agriculture and crop production, (ii) Importance of crop production in National Economy (iii) Different Branches of Farming and their importance

2. **Soil and Soil Fertility:** (i) Soil and its constituents (ii) Physical properties of Soil- Soil texture and Structure porespace, specific gravity, plasticity, cohesion and soil temperature (iii) Formation of soil-classification of soil in MP. and their characteristics (iv) Soil corrosion its kind their clamation soil-phases of soil conservation (v) Soil acidity and alkalinity and their reclamation soil-pH.
3. **Tillage:** (i) Object of tillage, tillage operations, ploughing, levelling, harrowing intercultivation (ii) Tillage implements, country plough improved ploughs, harrows and cultivators, threshers, winnowers and seed drills, tractor driven implements.
4. **Manures and Fertilizer** (i) Essential element for plant growth (1) Description and uses of organic manures, F. Y.M. Compost green manures (ii) Different Nitrogenous, Phosphate and potash Fertilizers, properties and uses.
5. **Production of crops:** (i) Classification of crops according to seasons and economic classification (1) Cultivation of Kharif Crops- Jowar Maize, Groundnut Cotton, Paddy Soybean Arhar Urad, Moong (i) Rabi crops-Wheat, Linseed, Mustard, Sugarcane, Gram Barely under following heads 1. Preparation of land 2. sowing operation 3. Seed rate per hectare 4. Manures and fertilizer 5. irrigation 6. Interculture and weeding 7. Improved varieties 8. Yield per Hectare 9. Disease: pests and their control.
6. **Irrigation and Drainage:** (i) object of irrigation and drainage (ii) sources of irrigation and drainage (iii) Method of irrigation and drainage (iv) Water requirements of crops (v) Duty and discharge of water. (vi) Common water lifts Diesel and electric pumps.
7. **Weed and weed control.** *Need and their classification, principles of Weed Control,*
8. **Cropping scheme, importance of principles if:** (i) Crop rotation (ii) Principle cropping (iii) Mixed and inter cropping (vi) Dry farming (v) Cooperative farming *Methods of Weed Control*
9. **Elementary Surveying**-Importance of Surveying elementary survey with the help of chains, instruments used in survey as optical square, cross staff offset rod, dumpy level, recording of field book
10. **Introduction** (i) Importance and scope of Horticulture (ii) Pomology- Location and layout (iii) Planting system - training, pruning, inter-cropping, winds breaks, protection from frost and sun burn (vi) care maintenance and rejuvenation of fruit, orchards

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11. Vegetable Gardening (i) Kitchen gardening (ii) Cultivation of Radish, Carrot, cole crops, Onion, Brinjal, Chilies, Tomato, potatoes.
12. Fruit cultivation (i) Vegetative propagation-Budding, inarching and Goottee cutting, Grafting, layering (ii) Cultivation of Papaya, Banana, Grapes, Mango, Guava and citrus fruits.
13. Ornamental Gardening (i) General Cultivation of Winter and summer season annuals (ii) Ornamental and flowering plants, Trees shrubs, climbers, hedges and hedges plants (iii) common ornamental and flowering plants e.g. Rose, Canna and chrysanthemum (iv) Preparation and maintenance of lawns.
14. Fruit and Vegetable preservation- Canning and bottling Technique (i) Simple canning and bottling techniques use of suitable containers like aluminised plastic and paper (ii) Washing, Blanching and peeling of fruit and Vegetables, trading of fruits for canning.
15. Preservation of Fruits and Vegetables (i) General principles and methods of fruit and vegetable preservation (ii) Processing by heat, preservation by antiseptic, drying, preservation by fermentation, dehydration and packing (i) Preparation of jelly, Lime squash and Tomato sauce.
16. Rural Finance (i) Cultivator's Finance needs for farmers (ii) Source of credit (iii) Organisation of Rural Cooperative credit and marketing societies.

5. (ब) पशुपालन एवं कुक्कुटपालन के तत्व [ELEMENTS OF ANIMAL HUSBANDRY AND POULTRY FARMING] (AG-3)

(A) 1. **Introduction:** (i) Importance of Live stock in Indian Economy. (ii) Body parts of cow and buffalo and description of important systems, respiratory, digestive, reproductive, secretion of milk.

2. **Improved Cattle Breeds:** (i) Cow (ii) Buffalo (iii) Goat and (iv) Sheep.

3. **Care and management of Cattle:** (i) Animal Hygiene (ii) Cattle housing sheds for bullocks, bail, milch cattle etc (i) Special attention for rearing of calves, pregnant and milch cattle, working bullocks and bull.

4. **Breeding of Cattle :** (i) Breeding, Line breeding and cross breeding, Mendel's laws of breeding (ii) Artificial insemination in cattle with examples.

(B) 5. **Dairy Farming:** (i) General idea regarding dairy farming as a business in village and town conditions requirement of land, labour, capital, management techniques.

6. Milk Production : (i) Different methods of milking. (ii) Principles of clean milk production. (iii) Factors affecting quality and quantity of milk.

7. Composition of milk: (i) Definition of milk (ii) Milk constituents (iii) Composition of Milk Factors affecting composition of milk.

8. Physical properties of milk: (i) Temperature (ii) Boiling Freezing point (iii) pH (iv) Density (v) Specific gravity use of Lactometer (vi) Gerber's method for fat test.

(C)9. Feed and Feeding: (i) Principles of Feeding of dairy cattle (ii) Different types of feeds and fodders and their nutritive values - Kharif and Rabi Fodders. Hay and silage crops (iii) Preservation of fodders making of silage, hay silopits hay silopits. (iv) Computation of balanced ration of cows, buffaloes, bullocks, bulls goats and sheep.

10. Judging of Cattle: (i) Importance of Judging. (ii) Judging method. Score card method and on the basis of body parts. (iii) Judging the age of cattle by rings on the horn and by the teeth development.

11. Dairy appliances: (i) Construction of appliances and their cleanliness (ii) working of cream separator and its parts. Butter churner. Butter worker.

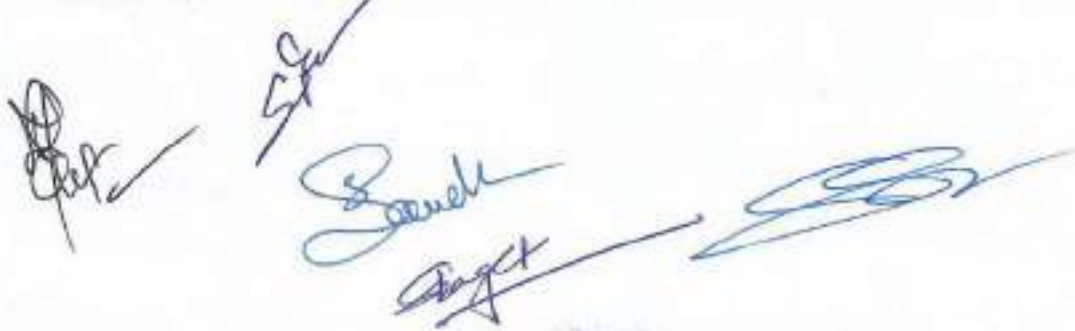
12. Milk Products: (i) Preparations of cheese. Cream, Ravri, Dahi, Butter, Ghee, condensed milk Milk powder and their composition.

13. Common diseases of Cattle: (i) Symptoms of sick Animals. (ii) Symptoms of different diseases. Rinder pest Foot and Mouth disease. Black quarter. Haemorrhagic Septicaemia, Anthrax and piroplasmiasis. (iii) their prevention and control measures.

14. Poultry Farming: (i) Introductory. (ii) Scope and limitation of Poultry Farming. (iii) important breeds of poultry for eggs, meat (iv) Hatching of eggs and uses of incubator.

15. Housing and ration for poultry birds: (i) Poultry sheds, layout model sheds (ii) Ration of poultry bird-chicken, Growers, layers and Broilers.

16. Diseases of Poultry: (i) preventive control measures. (ii) Bacillary White diarrhoea, Ranikhet, Coccidiosis, Fowl, Pox, Fowl cholera, Ecto and endoparasite.



UAET (University Agriculture Entrance Test) Exam Pattern 2023-24

Duration: 3 hrs

Maximum marks:

200

S.No.	Subject	Question	Marks
1.	Science group :- a) Maths/ Biology b) Physics c) Chemistry	 100 50 50	 100 50 50
2.	Agriculture group:- AG 1:- (Physics, chemistry, Maths, Biology) AG 2+3:- (Crop Production + Animal Husbandry)	 100 100	 100 100

The bottom section of the page contains several handwritten signatures and marks in blue ink. There are three distinct signatures, with the middle one being the most prominent and appearing to be 'Sandeep Singh'. There are also some scribbles and smaller marks scattered around the signatures.