

**SYLLABUS FOR THE POSTS OF SKILL ASSISTANT PROFESSOR(S) IN VARIOUS SUBJECTS/DISCIPLINES**

The schemes and syllabus for the posts of Skill Assistant Professor(s) in various subjects/disciplines against Advt. No. SVSU/Estt./T-14-32/2026 are as under:-

S. No.	Discipline	Syllabus
1.	Agriculture (Specialization in Soil Science/Agronomy/Plant Breeding/Genetics/Seed Technology)	Attached at Annexure-A
2.	Biology	As per latest syllabus of CSIR-NET
3.	Chemistry	As per latest syllabus of CSIR-NET
4.	Civil Engineering	As per latest syllabus of GATE
5.	Commerce	As per latest syllabus of UGC-NET
6.	Computer Science & Engg./IT	As per latest syllabus of GATE
7.	Electrical Engineering	As per latest syllabus of GATE
8.	Electronics Engineering	As per latest syllabus of GATE
9.	Fine Art	As per latest syllabus of UGC-NET of Visual Art
10.	Hotel Management	Attached at Annexure-B
11.	Management	As per latest syllabus of UGC-NET
12.	Mathematics	As per latest syllabus of CSIR-NET
13.	Mechanical Engineering	As per latest syllabus of GATE
14.	Medical Laboratory Technology	Attached at Annexure-C
15.	Pharmaceutical Sciences (Specialization in Pharmaceutics/Pharmacology)	As per latest syllabus of GPAT
16.	Physics	As per latest syllabus of CSIR-NET
17.	Physiotherapy	Attached at Annexure-D
18.	Visual Arts (specialization in Graphics, Animation & Design)	As per latest UGC-NET
19.	Yoga	As per latest UGC-NET

Scheme of the Written Test

- The written test shall consist of 50 Multiple Choice Questions (MCQs) carrying a total of 50 marks.
- Each question shall have only one correct answer and shall carry 1 mark.
- The duration of the written test shall be 90 minutes.
- There will be negative marking and 0.25 ($\frac{1}{4}$) mark shall be deducted for each incorrect answer.

Note: The schedule of the written test will be notified in due course. All applicants are advised to visit the University website regularly for any updates.

**Sd/-
Registrar**

**Syllabus of written test for the post of Skill Assistant Professor (Agriculture)****Total no. of Question: 50****Total Marks: 50****Time : 90 Minutes****Genetics and Plant Breeding:**

General genetics and plant breeding; conventional plant breeding methods of crop improvement; use of molecular markers and genomics; plant genetic engineering; tissue culture; population genetics; cytogenetics of crop plants; statistical methods and field plot techniques; recombinant DNA technology; germplasm conservation. Linkage and crossing over, spontaneous and induced mutation; crop domestication and evolution of crops; national and international institutes. Modes of asexual and sexual reproduction; incompatibility and male sterility; origin and distribution of cereals, millets, pulses, oilseeds, fibers and sugar crops; transgressive breeding; hybridization and chromosomal manipulation; chromosomal manipulation and stress resistance.

Agronomy:

Agroclimatic zones; remote sensing; physiological stress in plants; weed management; soil fertility and fertilizer use; dryland agriculture, crop production in problem soils; crop production of cereals, millets, pulses, oilseed crops and other field crops; organic farming and natural farming. Bioherbicides, role of GM crops in weed management; persistence of herbicides in soil; integrated weed management; principles and methods of fertilizer application; top dressing and foliar application, aqua fertigation; drought management; sustainability in agriculture. ITKs and farmers' innovations.

Soil Sciences:

Soil genesis, classification and survey; soil physics, soil chemistry; soil fertility and soil microbiology; methods of soil analysis, role of macro and micronutrients and deficiency symptoms of nutrients; topography and soil texture. Nutrients cycles; macro and micronutrients in soil; deficiency symptoms; manures and fertilizers; slow release fertilizers; quality control of fertilizers; interactions of nutrients in soil.

Seed Technology:

Seed Biology, mode of reproduction, sporogenesis, fertilization embryogenesis and seed development, apomixes. Parthenocarpy, seed dormancy, seed germination, seed production, seed processing, seed quality control, seed storage, seed health, seed industry development and marketing, protection of plant varieties, Biodiversity Act, Micropropagation and seed production under protected cultivation; variety testing, release and notification; genetic purity. Seed production of vegetables, cereals, oilseeds; disease free clonal propagation of crops; seed legislation; testing of varieties. Important seed borne diseases of cereals, oilseeds, pulses, fiber crops, vegetables; and their control measures; plant variety protection(PVP) and its significance.

**Syllabus of written test for the post of Skill Assistant Professor (Hotel Management)****Total no. of Question: 50****Total Marks: 50****Time : 90 Minutes****UNIT I: FOOD PRODUCTION**

Introduction to food production, professional kitchen and its importance in the hospitality industry, personal hygiene, kitchen hygiene, uniforms and protective clothing, kitchen layouts including basic, bulk and show kitchens, organizational structure and hierarchy of the kitchen department, duties, responsibilities and attributes of various chefs, and coordination of the kitchen department with other hotel departments. Kitchen equipment, fuels used in kitchens, their usage, care and maintenance, workstation organization, kitchen safety practices, fire prevention and fire-fighting procedures, first aid for burns, cuts and scalds, opening and closing procedures of kitchen operations, and maintenance of kitchen hygiene standards.

Food commodities including herbs and spices, fruits and vegetables, salt, sugar and sweeteners, milk and milk products, eggs, poultry, meat and fish, their characteristics, purchasing specifications, storage considerations, and applications in food production. Study of chicken including types, cuts, storage and culinary uses.

Methods of cooking including introduction, importance and principles of cooking, moist heat methods, dry heat methods and combination methods, baking, broiling, grilling, frying, steaming, stewing, poaching, roasting, sautéing and braising. Cooking using modern equipment such as microwave ovens, gas ranges, induction cookers, air fryers and other contemporary cooking media. HACCP principles, food safety standards, and their application in professional kitchens.

Stocks, sauces, soups and salads including classification, preparation and uses of stocks, mother sauces and their derivatives, proprietary sauces, thickening agents, preparation of good sauces and emerging trends in sauce preparation. Soups including classification, preparation methods, characteristics and presentation trends. Salads including types, composition, dressings, accompaniments and contemporary trends in salad preparation and presentation.

UNIT II: FOOD AND BEVERAGE SERVICE

Introduction to food and beverage service, concept and classification of catering establishments and their importance in the hospitality industry. Personal hygiene, grooming standards, uniforms and professional appearance, food and beverage outlets including restaurants, coffee shops, tea lounges, banquets and staff cafeterias, their layouts and functions. Organizational structure of the food and beverage service department, service brigade, staffing patterns, duties and responsibilities of service personnel, professional attributes and coordination with other hotel departments.

Food service equipment including crockery, cutlery, glassware, linen, condiments and service accessories, their uses, care and maintenance. Menu planning and design including concepts, types, features and presentation of menus. Table laying, cover setup, napkin folding techniques,

receiving and greeting guests, and procedures for guest handling. Food service methods including various types of food service and their applications, mise-en-place and mise-en-scène, preparation of service areas, side stations and maintenance of par stock, functions performed during service, order taking procedures, and emerging trends in food service operations.

Coffee shop and breakfast service including the concept and layout of coffee shops, organizational structure, types and classification of breakfast, breakfast services in hotels, preparation and arrangement of breakfast tables and trays, breakfast order taking procedures and contemporary trends in breakfast service.

Restaurant operations including concepts and types of restaurants, restaurant layouts and staffing, guest reception procedures, order taking and service methods, maintenance of equipment, furniture and fixtures, coordination with housekeeping for linen exchange, inventory control of crockery, cutlery and linen, and the concepts of theme restaurants, specialty restaurants and celebrity restaurants.

UNIT III: FRONT OFFICE OPERATIONS

Introduction to the front office department, its importance and role in the hospitality industry, functions and responsibilities of the front office, organizational structure and hierarchy of the front office department, duties and responsibilities of front office personnel including front office manager, assistant front office manager, receptionist, reservation assistant, concierge, bell desk staff, guest relation executive, cashier, and telephone operator. Coordination of the front office with housekeeping, food and beverage service, sales and marketing, maintenance, security, and other hotel departments.

Front office organization and layouts including various sections of the front office, front desk layout, reception area, lobby design, reservation section, concierge desk, bell desk, business center, and guest relation desk. Front office equipment, tools and technology, property management systems, communication equipment, and modern technological applications used in front office operations.

Reservation procedures including the concept and importance of reservations, sources of reservations, types of reservations, reservation systems, guaranteed and non-guaranteed reservations, reservation records, amendments, cancellations, overbooking, and forecasting. Introduction to computerized reservation systems and property management systems.

Guest registration and reception procedures including pre-arrival activities, receiving and welcoming guests, registration process, guest check-in procedures, handling walk-in guests, room assignment, registration records, issuing room keys, guest information management, and special requests handling. Guest accounting procedures including maintenance of guest accounts, billing procedures, folios, vouchers, methods of payment, credit control, foreign currency handling, cash and credit transactions, guest settlements, and check-out procedures. Night auditing procedures, front office records, reports, and revenue management.

Communication in front office operations including internal and external communication, telephone handling procedures, telephone etiquette, message handling, business correspondence, email communication, complaint handling, and interpersonal communication skills required in guest interactions. Guest relations and customer service including hospitality etiquettes, grooming standards, professional behavior, handling guest complaints, service

recovery, managing difficult situations, VIP guest handling, guest satisfaction, guest loyalty, and quality service standards.

Front office records and documentation including registration cards, arrival and departure lists, occupancy reports, room status reports, guest history cards, information racks, and various operational records maintained in the front office department. Safety and security in front office operations including key control, guest privacy, emergency procedures, handling suspicious activities, security of guest valuables, fire emergencies, evacuation procedures, and coordination with security departments.

UNIT IV: HOUSEKEEPING OPERATIONS

Cleaning and upkeep of guest rooms and public areas including cleaning processes, special cleaning, weekly cleaning schedules, evening service and turndown service. Cleaning procedures for vacant rooms, occupied rooms, VIP rooms, departure rooms, under-maintenance rooms and bathrooms. Cleaning and maintenance of public areas including entrances, lobbies, front office areas, elevators, staircases, guest corridors, banquet halls, dining rooms, leisure areas and public restrooms.

Pest control including types of pests and methods of pest control. Safeguarding hotel assets, concerns for safety and security in housekeeping operations, and protection of hotel property and guest belongings.

Special provisions for guests including facilities and modifications for differently abled guests in guestrooms and public areas, safety and comfort measures for women travellers, children and special market segments. Service design and handling of special situations in hospitality operations. Safety and security procedures including accidents, fire prevention and fire-fighting procedures, accident reporting, security of guests, employees, public areas, guestrooms and back office areas. First aid concepts and emergency procedures related to heart attacks, fainting, fractures, burns, scalds, fits and artificial respiration.

Housekeeping supervision including the importance of inspection, preparation and use of inspection checklists, areas requiring special attention, role and responsibilities of supervisors, supervision techniques and quality control in housekeeping operations.

UNIT V: TOURISM AND AIRLINE OPERATIONS

Introduction to tourism including the definition, concept, nature, scope and significance of tourism, components of the tourism industry and its contribution to economic, social and cultural development. Various forms of tourism including domestic, international, inbound, outbound, leisure, business, religious, medical, rural, ecotourism, adventure and cultural tourism, their characteristics and importance in the development of destinations and tourism businesses. Tourism organizations and stakeholders including the role and functions of national and international tourism organizations, government tourism departments, tourism boards and development authorities. Study of various stakeholders such as tour operators, travel agencies, destination management companies, transportation providers, hospitality organizations and local communities, along with their coordination and contribution toward tourism development and destination management.

Evolution and growth of airlines, importance of aviation in tourism and hospitality, structure and components of the aviation industry, role of civil aviation in economic development, full forms of ICAO, IATA, DGCA, AAI, and BCAS. Airline industry structure, classification and types of airlines including full-service carriers, low-cost carriers, regional, charter and cargo airlines, organizational structure of airlines, hierarchy and functions of airline departments such as flight operations, passenger services, ground operations, cabin services, engineering and maintenance, sales and marketing, cargo operations, customer relations, and aviation security, duties and responsibilities of airline personnel including airport managers, station managers, duty managers, customer service agents, ground staff, and cabin crew.

Introduction to airports, types and classification of airports, airport ownership and management, airport layout and terminal facilities, arrival and departure areas, check-in counters, boarding gates, security hold areas, baggage claim areas, cargo terminals, runways, taxiways, apron areas, aircraft parking bays, airport authorities and airport management systems. Passenger handling services including airline reservations and ticketing, Passenger Name Record (PNR), electronic ticketing, fare structures, travel documentation, check-in procedures, web and kiosk check-in, seat allocation, boarding pass issuance, baggage handling procedures, baggage tagging, excess baggage, lost and mishandled baggage procedures, security checks, customs and immigration formalities, boarding procedures, arrival formalities, and passenger facilitation services. Ground handling operations including passenger handling, baggage handling, cargo handling, aircraft cleaning, catering coordination, aircraft marshalling, aircraft parking, pushback procedures, loading and unloading operations, refueling coordination, aircraft turnaround management, and coordination among airport departments.

Cabin crew operations and in-flight services including cabin crew organization, duties and responsibilities, grooming standards, professional ethics, pre-flight briefing procedures, safety checks, cabin preparation, passenger handling, food and beverage service, special meal service, safety demonstrations, customer service standards, post-flight duties, reporting procedures, and documentation. Aviation safety and security including safety management systems, aviation security procedures, passenger and baggage screening, restricted areas, prohibited articles, emergency procedures, evacuation procedures, medical emergencies, first aid, fire safety, dangerous goods regulations, classification and handling of dangerous goods. Customer service in airlines including passenger relationship management, customer expectations, service quality, complaint handling, conflict management, service recovery techniques, loyalty programmes, and handling of special categories of passengers such as VIPs, elderly passengers, differently abled passengers, unaccompanied minors, and medical cases.

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Syllabus of written test for the post of Skill Assistant Professor (Medical Laboratory Technology)

Total no. of Question: 50

Total Marks: 50

Time : 90 Minutes

Knowledge at the post-graduation level in following broad areas

1. Human Anatomy & Physiology
2. Clinical Biochemistry
3. Clinical Pathology
4. Clinical Microbiology
5. Physiology & Nutrition
6. Biostatistics & Hospital Management
7. Clinical Haematology
8. Advance Instrumentation & Maintenance
9. Lab Management
10. Blood Transfusion & immune haematology
11. Diagnostic Microbiology
12. Basic Cellular Pathology & Allied Technology
13. Biomolecules
14. Cellular pathology
15. Metabolism
16. Enzymology
17. Clinical Molecular Biology
18. Clinical Immunology
19. Medical Laboratory Techniques



Syllabus of written test for the Post of Skill Assistant Professor (Physiotherapy)

Total No. of Question: 50

Total Marks: 50

Time : 90 Minutes

Cardio Throacic & Pulmonary Conditions

1. Cardio-pulmonary assessment

i) History taking ii) Observation iii) Palpation iv) Auscultation v) Percussion vi) Functional ability

2. Relevant diagnosis tests (for practical knowledge only)

i) Hematology ii) ABG analysis iii) Spirometry iv) Invasive and Non-invasive techniques v) ECG vi) Echocardiography vii) Imaging • Plain X-ray • Computed Tomography • Magnetic resonance Imaging viii) Cardiac catheterization ix) Radio nuclide Scanning x) Stress testing xi) Lung Function Testing xii) Biofeedback xiii) Humidification and Aerosol Therapy.

CARDIOLOGY i) Assessment of system of heart disease. ii) Disorders of cardiac rate rhythm and conduction. iii) Cardiac Arrest Course Code Subject MPT 03 Physiotherapy management of cardiopulmonary conditions. iv) Shock v) Rheumatic fever vi) Congenital Heart Values vi) Disease of Heart Values ix) Infective endocarditis x) Ischemic heart disease xi) Hypertension xii) Orthostatic hypertension xiii) C.P.R xiv) Pericarditis xv) Heart disease in pregnancy xvi) Inflammatory arterial disease xvii) Raynaud's Disease xviii) Venous Thrombosis xix) Peripheral Vascular Disease xx) Cardiomyopathy xxi) Disease of the pericardium

PULMONOLOGY i. Obstructive Pulmonary Disease ii. Infections of the respiratory System iii. Interstitial and Infiltrative Pulmonary Diseases. iv. Pulmonary Disease due to Exposure to Organic and Inorganic Pollutants v. Pulmonary Disorders due to Systemic Inflammatory disease vi. Pulmonary Vascular disease vii. Disease of the Pleura viii. Respiratory Failure ix. Supplementary Oxygen and Oxygen Delivery in chronic Respiratory disease x. Neuromuscular Atrophic, Poliomyelitis, Motor Neuron Disease, Kyphoscoliosis Pectus carinatum, Pectus Excavatum xi. Pathophysiology of Paralytic-Restrictive Pulmonary Syndromes xii. Conventional Approaches to Managing Neuromuscular Ventilatory Failure xiii. Mechanical Ventilation: Concepts, Physiological effects and Complications

CARDIOTHORACIC SURGERIES

1. Closed versus open Heart Surgeries 2 Incisions 3 Preoperative Assessment of Patients 4 Pre and Post-Operative Blood Exchange 5 Hemodynamics Performance of Patient 6 Emergencies in CTVS 7 AV Shunts 8 Heart Transplant 9 Left Ventricular Assistive Devices 10 Procedure on Sternum, Chest wall Diaphragm, Mediastinum and Esophagus 11 Cardiopulmonary Bypass 12 Maintaining and Removing Artificial Airways 13 All Pulmonary Surgeries like Lobectomy, Pneumectomy Pleurectomy, Thoracotomy etc.

General PT

1) Exercise Therapy

i. Assessment techniques: Manual Muscle Testing and Goniometry. ii. Stretching and Mobilization. iii. Re-education and strengthening. iv. Balance and Coordination Ex. v. Gait Analysis and Training (Both Normal and Pathological Gaits) vi. Relaxation and soft Tissue Manipulations. vii. Posture. viii. PNF and Neuromuscular Coordination ix. Hydrotherapy. x. Joint Mobilization

2) Electro-Therapy

i. General Review of Low, Med and high currents and their modifications like Di-dynamic and Russian Currents etc. ii. Laser iii. Cryotherapy iv. UVR and IRR v. Other thermal modalities like SWD, MWD, HydroCollator, Wax therapy Fluido-therapy.

Fundamental Mechanics

• Forces; composition and resolution of forces; force systems • Force of gravity and COG • Stability • Reaction forces • Friction • Moments • Newton's laws • Equilibrium: static and dynamic • Simple machines: Levers, pulleys and wheel and axle • Segmental dimensions • Poisson's effect • Static and cyclic load behaviors • Load: Load sharing and load transfer

2. Kinematics

i. Motion : types , location , magnitude and Direction ii. Angular motion and its various parameters iii. Linear motion and its various parameters iv. Projectile motion

3. Muscle Mechanics

i. Structure and composition of muscle ii. Fiber length and cross-section areas iii. Mechanical properties iv. EMG changes during fatigue v. Changes in mechanical properties because of aging, exercise and Immobilized of immobilization vi. Clinical application Ligament and Tendon mechanics:
❖ Structure, composition and mechanical properties ❖ Cross- sectional area measurement ❖ Muscle tendon properties ❖ Temperature sensitivity ❖ Changes in mechanical properties because of ageing, exercise and immobilization ❖ Mechanoreceptors ❖ Clinical application

4. Bone Mechanics

- ❖ Structure and composition of bone ❖ Stress ❖ Strain ❖ Modulus of Rigidity & Modulus of elasticity ❖ Mechanical properties of Trabecular system ❖ Mechanical properties of cortical bone
- ❖ Bone Remodeling ❖ Response of bone to aging & exercise & immobilization ❖ Mechanics to prevent fracture in bone ❖ Clinical application.

5. Joint Mechanics

- ❖ Joint design ❖ Joint categories ❖ Joint Functions: Arthrokinematics, Osteokinematics and kinematics chains ❖ Joint forces, equilibrium and distribution of these forces ❖ Degenerative changes in weight bearing joints and compensatory actions ❖ Joint stability and mechanisms ❖ Clinical applications.

7. Measurement Instruments

- ❖ Photo- optical devices ❖ Pressure transducers and Force Plates ❖ Gait Analyzer ❖ Isokinetic device ❖ EMG (Electro physiology of muscle contraction, recording, processing) ❖ Relationship between EMG and Biomechanical Variables

8. Mechanical energy, Work and power

- Definitions • Positive and negative muscles work • Muscle mechanical power

Orthopaedics

1. Orthopedic Assessment > Patient History > Observation > Examination-Active and Passive Movements, functional Assessment, Special Tests, Reflexes and Cutaneous Distribution, Joint Play Movements Palpation > Gait-Definitions, Gait Cycle, Abnormal Gait patterns > Posture-Normal and Abnormal, Spinal Deformities > Disability Evaluation > Assessment of Amputees > Examination and Assessment of Geriatric patient.

2. Regional Examination with Special Emphasis on Special Test: > Head and Face > Cervical Spine > Shoulder > Elbow > Forearm, Wrist and Hand > Thoracic Spine > Lumbar Spine > Pelvis > Hip > Knee > Lower Leg, Ankle and foot.

3. Orthopedic Diagnosis (for Practical Purposes only) > Biomechanical measurements -Limbs and Spine > Hematology and serology > Biopsy > Plain Radiography > Contrast Radiography > Myelography > Radioactive Scanning > Discography > Tomography > Magnetic Resonance Imaging > Arthroscopy > Electromyography, Nerve Conduction Velocity, Strength Duration Curve > BMO- Bone Densitometry- Ultrasound Densitometer and Dual Energy X-ray Absorptiometry (DEXA) 2. Differential Diagnosis in different cardiopulmonary conditions.

4. General Orthopedics i. Infection Disorders of the Bones and Joints ii. Metabolic Disorders of the bones and joints iii. Congenital Disorders of the bones and joints iv. Inflammation of the bones and joints v. Degeneration of the bones and joints vi. Developmental of the bones and joints vii. Connective tissue Disorders viii. Neuromuscular disorders xi. Tumors of bones x. Complex Regional Pain Syndrome xi. Myopathies xii. Burns

Sports

Emergency sports evaluation, biomechanics of running and jumping, medical problems of athletes, female athletic triad, emergency care athletes first aid and cardiopulmonary resuscitation, sports specific injury pattern -cricket, tennis, football, sports injuries to lower Limb, spine, internal and external bleeding, role of physical exercise in high blood pressure & diabetic athlete, bio-mechanic and injury to cricket, Judo, tennis badminton, swimming, Cyriax mobilization technique for peripheral joints and spine, capsular stretching, principle of Pilates, structural and functional adaptations to resistance training, environmental stress on exercise performance- medium and high altitude, thermal stress, energy expenditure during walking running and swimming.

Rehabilitation

1 Congenital and hereditary disorders

2 Head Injury.

i) Comatose patient ii) Closed skull fractures iii) Hematomas, subdural, epidural and intracerebral iv) Open cranio- cerebral injuries v) Reconstruction operations in head injuries

3 Disorders of spinal cord and cauda equine

- Acute traumatic injuries • Haematomyelia and acute central cervical cord injuries • Slow progressive compression of the spinal cord • Syringomyelia • Ischemia and infraction of the spinal cord and cauda • Spina bafida

4 Disorders of cranial nerves

5 Disorders of peripheral nerves • Peripheral Neuropathies

- Causalgia • Reflex sympathetic dystrophy • Irradiation neuropathy • Peripheral nerves tumors • Traumatic, compressive and Ischemic neuropathy • Spinal radiculitis and radiculopathy • Hereditary motor and sensory neuropathy.