



# UNIVERSITY OF KASHMIR

**NAAC ACCREDITED GRADE A++**  
UNIVERSITY CAMPUS, HAZRATBAL, SRINAGAR 190006, KASHMIR.

## NOTICE

It is notified for the information of all the candidates who had applied for the post of **Senior Technical Assistant (CORD)** advertised vide Advertisement Notice No. 06 of 2026 dated: 28-03-2026 that the **Selection Criteria, Scheme and Syllabus** for the said post shall be as under:

### Scheme & Selection Criteria

Selection Criteria	Maximum Marks
1. Objective Type Written Test (OMR based)	100 Marks
<b>Total Marks</b>	<b>100</b>

- The selection shall be made strictly on the basis of merit secured in the **OMR-based written examination**.
- The written examination shall consist of **100 objective-type questions**, carrying **one mark each**.
- There shall be **negative marking of 0.25 marks for each wrong answer**.

### Scheme for Objective-Type Written Test (OMR Based)

- **Number of objective-type questions: 100**
- **Marks allotted to each correct answer: 01**
- **Negative marks for each incorrect answer: 0.25**
- **Time allowed: 110 minutes**

# **Syllabus for Objective-Type Written Test**

## **Unit 1: Cell biology and cellular organization**

1. Structure and function of prokaryotic and eukaryotic cells
2. Cell organelles - nucleus, mitochondria, chloroplasts, ER, Golgi, lysosomes
3. Cell membrane structure, transport mechanisms and membrane proteins
4. Cell cycle, mitosis, meiosis and cell division regulation
5. Cytoskeleton, cell motility and intracellular trafficking

## **Unit 2: Biomolecules and biochemistry**

1. Structure, classification and functions of carbohydrates, proteins, lipids and nucleic acids
2. Enzyme kinetics, inhibition, regulation and allosteric modulation
3. Bioenergetics and metabolic pathways (glycolysis, TCA cycle,  $\beta$ -oxidation)
4. Estimation and quantification of biomolecules (protein, nucleic acids, lipids and carbohydrates)
5. Plant secondary metabolites and their medicinal importance

## **Unit 3: Molecular biology and genetics**

1. DNA replication, transcription and translation in prokaryotes and eukaryotes
2. Gene regulation - operon concept, lac and trp operons
3. Mutation, DNA repair mechanisms and genetic recombination
4. Mendelian inheritance, linkage and chromosomal aberrations
5. PCR and gel electrophoresis

## **Unit 4: Modern biology and applied biotechnology**

1. Recombinant DNA technology and its applications
2. Genomics, proteomics and basic bioinformatics tools
3. Plant tissue culture and animal cell culture
4. Fermentation technology, industrial microbiology and scale-up of microbial cultures
5. Environmental biotechnology and bioremediation principle

### **Unit 5: Molecular microbiology and recombinant DNA technology**

1. Isolation and purification of genomic and plasmid DNA
2. Restriction enzymes, vectors and cloning strategies
3. Transformation, electroporation and selection of recombinants
4. PCR applications in microbial diagnostics and 16S rRNA sequencing
5. Next generation sequencing and MALDI-TOF

### **Unit 6: Immunology and immunotechniques**

1. Types of immunity - innate and adaptive immune response
2. Antigen-antibody interactions and immunological techniques (ELISA, Western blot)
3. Monoclonal and polyclonal antibody production
4. Complement system, hypersensitivity and autoimmunity
5. Hybridoma technology and vaccine development principles

### **Unit 7: Applied microbiology, cultivation, growth and identification techniques**

1. General characteristics and classification of microorganisms
2. Sterilization and aseptic techniques
3. Culture media - types, preparation, quality control; pure culture techniques (streak, spread, pour plate) and anaerobic culture methods
4. Staining techniques (Gram, acid-fast, spore, capsule) and microscopic identification of bacteria, fungi and yeast
5. Bacterial growth curve, factors affecting growth, biochemical tests (IMViC, catalase, oxidase, coagulase, urease, TSI), preservation of cultures and scale-up techniques

### **Unit 8: Instrumentation and analytical techniques**

1. Principle and applications of UV-Vis spectrophotometer
2. pH meter, autoclave, biosafety cabinet - operation and maintenance
3. Microscopy - bright field, phase contrast, fluorescence and electron microscopy
4. Chromatography (HPLC, LCMS and GCMS)
5. Principles and working of centrifuge and ultra-centrifuge

### **Unit 9: Biosafety and laboratory practices**

1. Biosafety levels (BSL-1 to BSL-4) and containment practices
2. Personal protective equipment (PPE), chemical hazards and spill management
3. Bio-medical waste segregation, treatment and disposal (as per CPCB guidelines)
4. Good Laboratory Practices (GLP) and laboratory accreditation norms
5. Fire safety, autoclave safety and emergency protocols in microbiology laboratory

### **Unit 10: Research methodology, biostatistics and laboratory management**

1. Principles of experimental design and hypothesis testing
2. Basic biostatistics - mean, SD, t-test, chi-square test and probability
3. Scientific record keeping, lab notebook and SOP preparation
4. Quality control (QC), quality assurance (QA) in research laboratory
5. Inventory management and equipment maintenance

No.F(Syllabus-STA-CORD-Rectt.)KU/26  
Dated:16-06-2026

Sd/-  
**Deputy Registrar**  
(Recruitment)