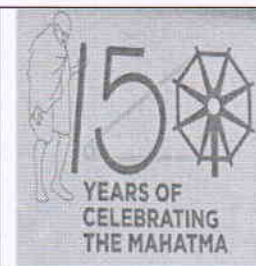




**INDIAN INSTITUTE OF INFORMATION  
TECHNOLOGY, UNA [HP]**

An Institute of National Importance under MHRD  
NIT Campus, Hamirpur [HP]-177005

Website: [www.iiitu.ac.in](http://www.iiitu.ac.in)



08, June'19

[Ref. IIITU/Acad/AY-2019-20-Faculty Recruitment/2019 Dated: 09, May'19]

**Post Name: Guest Faculty in Biotechnology**

**PROVISIONAL LIST OF ELIGIBLE CANDIDATES**

Sr. No	Application No.	Name	Father Name
1.	IIITU-GF-BT-01	Anupama Gupta	Sh. Tejinder Gupta
2.	IIITU-GF-BT-02	Anushruti Mehta	Sh. Naresh Mehta
3.	IIITU-GF-BT-03	Chanpreet Kaur	
4.	IIITU-GF-BT-04	Debanita Roy	Sh. Debashis Roy
5.	IIITU-GF-BT-05	Dhiraj Kumar Choudhary	Sh. Rajkumar Choudhary
6.	IIITU-GF-BT-06	Dr. Divya Vishambhar Kumbhakar	Sh. Vishambhar Kumbhakar
7.	IIITU-GF-BT-07	N. Elamathi	Sh. R. Natarajan
8.	IIITU-GF-BT-08	R. Gopinath	
9.	IIITU-GF-BT-09	Dr. Harashit Kumar Mandal	Sh. Dinesh Chandra
10.	IIITU-GF-BT-10	Harpreet Kaur	Sh. Gurnam Singh
11.	IIITU-GF-BT-11	Indu Sharma	Sh. Omkar Nath Sharma
12.	IIITU-GF-BT-12	Kalpana Rana	Late Sh. Tek Chand Rana
13.	IIITU-GF-BT-13	Dr. Mahesh Kumar	Sh. Muneshwar Pandit
14.	IIITU-GF-BT-14	Parul Sharma	Late Sh. Harish Sharma
15.	IIITU-GF-BT-15	Rinkal Dhiman	Sh. Sushrat Dhiman
16.	IIITU-GF-BT-16	Rukhsar Fatima	Sh. Abdul Waheed Khan
17.	IIITU-GF-BT-17	Sabina Rana	Sh. Gurinder Singh Rana
18.	IIITU-GF-BT-18	Sakshi Sharma	Sh. Madan Lal Sharma

Contd. ... (2)

19.	IIITU-GF-BT-19	Sanjay Kumar	Sh. Pratap Singh
20.	IIITU-GF-BT-20	Shailendra Singh Shera	Sh. Ravindra Singh Shera
21.	IIITU-GF-BT-21	Sheelendra M Bhatt	Sh. M. P. Rai Bhatt
22.	IIITU-GF-BT-22	Dr. Shikha Rani	Late Sh. Sham Sunder
23.	IIITU-GF-BT-23	Tanuja Mishra	Sh. Satish Kumar Mishra
24.	IIITU-GF-BT-24	Majneesh Chaudhary	Sh. Sikandar Kumar
25.	IIITU-GF-BT-25	Vandna Sharma	Sh. Banku Ram Sharma
26.	IIITU-GF-BT-26	Anshul Verma Katoch	Sh. Vijay Verma
27.	IIITU-GF-BT-27	Mamta Dogra	Sh. Suresh Chand Dogra
28.	IIITU-GF-BT-28	Komal Rajput	Sh. Kuldeep Singh
29.	IIITU-GF-BT-29	Shelly Rana	Sh. Ranjit Singh
30.	IIITU-GF-BT-30	Arun Chauhan	Sh. Santram Chauhan
31.	IIITU-GF-BT-31	Dr. Sanjeev Kumar	Sh. Mahendra Singh
32.	IIITU-GF-BT-32	Dr. Madan Lal Verma	Sh. Rattan Chand Verma
33.	IIITU-GF-BT-33	Sushant Swami	Sh. Prasad Swami
34.	IIITU-GF-BT-34	Sarita Srivastava	Sh. Ram Sharan Lal Srivastava

A. The syllabus for written test is annexed.

The schedule for written test and interview is as follows:

Post	Date	Written Test	Interview
Guest Faculty	15, June'19	10:00 AM	02:00 PM

**B. Instructions to candidates:**

- a) The venue for Written test/ Interview will be at office of IIIT, Una, Transit Campus-II,  
(Dev Bhumi Group of Institutes)  
Chandpur, Haroli, Una-177 220.
- b) No Separate hall ticket will be sent.
- c) Candidates appearing for Written test/ Interview should bring a Govt. issued Proof of Identity.
- d) No TA/DA will be given for attending the Selection process.
- e) Candidates are expected to be in the venue well ahead of the scheduled time.
- f) Advised to visit the website of the Institute [www.iiitu.ac.in](http://www.iiitu.ac.in) for updates on the selection process.

*S. Selvakumar*

**DIRECTOR** 08 06 19

Encl.: Syllabus for Written Test



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## GUEST FACULTY (ON CONTRACT BASIS) RECRUITMENT – JUNE 2019

### SYLLABUS FOR WALK IN WRITTEN TEST ON 15, June'19

#### BIOTECHNOLOGY

##### Unit I: Biochemistry

Biomolecules and their conformation; Weak inter-molecular interactions in biomacromolecules; Chemical and functional nature of enzymes; Kinetics of single substrate and bi-substrate enzyme catalyzed reactions; Bioenergetics; Metabolism (Glycolysis, TCA and Oxidative phosphorylation); Membrane transport and pumps; Cell cycle and cell growth control; Cell signaling and signal transduction, conformational analysis of proteins and peptides, Metabolic breakdown of amino acids, transamination, deamination, Fatty acid oxidation- major and minor pathways of fatty acid oxidation, Transport mechanisms- active and passive transport, ATP-driven active transport and Ion gradient driven active transport.

##### Unit II: Microbiology and Bioprocess Technology

Microbial classification and diversity (bacterial, algal and fungal); Methods in microbiology; Microbial growth and nutrition; Aerobic and anaerobic respiration; Nitrogen fixation; Microbial diseases and host-pathogen interaction; Proteomics, Structural Genomics, Bioprocess technology for the production of cell biomass and primary/secondary metabolites, Microbial production, purification and bioprocess application(s) of industrial enzymes; Production and purification of recombinant proteins on a large scale; Chromatographic and membrane based bio-separation methods; Immobilization of enzymes and cells and their application for bioconversion processes. Aerobic and anaerobic biological processes, Bioremediation; Fermentation technology – Design of various commercial media for industrial fermentations– Applications of fermentation.

##### Unit III: Immunology

Innate, humoral and cell mediated immunity; Antigen; Antibody structure and function; Molecular basis of antibody diversity; Synthesis of antibody and secretion; Antigen-antibody reaction; Complement; Primary and secondary lymphoid organ; B and T cells and macrophages; Major histocompatibility complex (MHC); Antigen processing and presentation; Polyclonal and monoclonal antibody and its applications; Regulation of immune response; Immune tolerance; Hypersensitivity; Autoimmunity; Graft versus host reaction. Vaccines– Types, Principles and practice of vaccine production– Role and properties of adjuvant. Immunization– Types and methods- Vaccination– Types- vaccination schedule– reverse vaccinology- Vaccines for infectious diseases. Antigens and epitopes– Types and methods of analysis, DNA vaccine, Plant vaccine.

#### **Unit IV: Molecular Biology and Advanced Genetic Engineering**

Cell organization and sub-cellular structure, structure and properties of nucleic acids, organization of prokaryotic and eukaryotic genomes, mechanisms of DNA replication, mutagenesis, DNA repair, transcription, translation, mechanisms of DNA recombination, regulation of gene expression, eukaryotic RNA splicing and processing, cell cycle, programmed cell death, cell transformation, genes in differentiation and development, oncogenes. Genetic engineering: Principles of recombinant DNA technology and its applications: identification, isolation, amplification and cloning of genes, High throughput analysis of genome and proteome, Recombinant protein expression systems: design of different expression systems, Gene probes and DNA fingerprinting for diagnosis, identification of biomarkers, gene silencing using antisense and siRNA technology, gene therapy systems, application of stem cells in therapy, recombinant vaccines and antibodies. Gene bank, human genome project, Gene therapy and Biochips.

#### **Unit V: Plant Biotechnology and Animal Biotechnology**

Organization of plant cells; Totipotency; Regeneration of plants; Plant products of industrial importance, Plant growth regulators and elicitors; Cell suspension culture development: methodology, kinetics of growth and production formation, nutrient optimization; Production of secondary metabolites by plant suspension cultures. Characteristics of animal cells: Metabolism, regulation and nutritional requirements for mass cultivation of animal cell cultures; Kinetics of cell growth, Micro & macro-carrier culture, Live stock improvement; Cloning in animals.

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