

Government of West Bengal
Department of Science and Technology and Biotechnology
West Bengal State Council of Science & Technology
Geoinformatics & Remote Sensing Cell
Bikash Bhavan (4th Floor), Salt Lake, Kolkata 700 091

Application No.
Received on

Last Date of Receipt of Filled-in Application Form: 3.00pm of 15th November, 2019

Filled-in Application Form may be submitted to :

Principal Scientist
Department of Science and Technology and Biotechnology
Government of West Bengal
Bikash Bhavan (4th Floor), Salt Lake, Kolkata - 700091

Projects for which applications are invited :

- 1. Implementation of Waterbodies Census and Sixth Minor Irrigation Census with Cadastral-level Landuse Mapping**, sponsored by Deptt. of Science and Technology and Biotechnology and Water Resources Investigation and Development Deptt., Government of West Bengal : [SRF : 17 (General : 09, SC : 04, ST : 01, OBC (A) : 02 and OBC (B) : 01)]; JRF : 45 (General : 24, SC : 10, ST : 03, OBC (A) : 05 and OBC (B) : 03)]
- 2. National Wetland Mapping - Phase II**, sponsored by Space Applications Centre, Deptt. of Space, Govt. of India : [SRF : 01 (General : 01); JRF : 01 (General : 01)]
- 3. GIS Mapping of Police Station and other Police Jurisdiction**, sponsored by Home and Hill Affairs Department, Govt. of West Bengal : [SRF : 03 (General : 02, SC - 01); JRF : 01 (General : 01)]
- 4. Mangrove community zonation and biophysical characterisation for coast of West Bengal as a part of National Mangrove Mapping project**, sponsored by Space Application Centre, Deptt. of Space, Govt. of India : [SRF : 01 (General : 01)]
- 5. Area Estimation of Groundnut in Rabi season 2018-20 for West Bengal State - A Pilot Project**, sponsored by Space Application Centre, Deptt. of Space, Govt. of India [JRF : 02 (General : 01, SC : 01)]
- 6. Space Based Information Support for Decentralised Planning - Update**, sponsored by National Remote Sensing Centre, Deptt. of Space, Govt. of India [SRF : 05 (General : 03, SC - 01, ST - 01); JRF : 05 (General : 03, SC - 01, ST - 01)]
- 7. Generation of Cadastral Database of West Bengal**, sponsored by Deptt. of Science and Technology and Biotechnology, Government of West Bengal : [SRF : 06 (General : 03, SC : 02, OBC (B) : 01)]; JRF : 03 (General : 01, SC : 01, OBC (B) : 01)]

Important Dates (tentative) :

Date of Issue of Admit Card : 30th November, 2019 (Saturday)

Date of Written Exam : 1st December, 2019 (Sunday)

Date of Interview : to be intimated later

Note:

1. The Application Form is attached herewith.
2. Incomplete applications will be rejected.
3. No TA/DA will be provided for appearing in the written examination and interview.
4. Exam Format and Syllabus is also available on this website
5. Venue of Written Examination and Interview will be intimated later.

Eligibility Criteria

Position	Junior Research Fellow
Remuneration	Rs. 18,700/- per month (consolidated)
Essential Qualifications	55% for General Category and 50% for SC/ST/OBC candidates in Master's degree in Geology / Applied Geology / Geography / Environmental Science / Remote Sensing & GIS / Water Resources / Civil Engineering
Desirable Qualifications	PG Diploma in Geoinformatics or equivalent. Experience in using RS & GIS. NET/GATE/SLET qualified.
Age limit	30 years for General Category and 35 years for SC/ST/OBC as on 01.12.2019. Department has the discretion to relax the qualifying age for candidates with higher qualifications and longer experience.
Position	Senior Research Fellow
Remuneration	Rs. 21,000/- per month (consolidated)
Essential Qualifications	55% for General Category and 50% for SC/ST/OBC candidates in Master's degree in Geology / Applied Geology / Geography / Environmental Science / Remote Sensing & GIS / Water Resources / Civil Engineering 2 years experience in using RS & GIS for Mapping
Desirable Qualifications	PG Diploma in Geoinformatics or equivalent. NET/GATE/SLET qualified.
Age limit	35 years for General Category and 40 years for SC/ST/OBC as on 01.12.2019. Department has the discretion to relax the qualifying age for candidates with higher qualifications and longer experience.

EXAM FORMAT

- 1) 100 nos. of Multiple Choice Question (MCQ).
- 2) Each question of 1 mark, total marks hundred.
- 3) Questions to be in two sections A and B of 50 questions each.
- 4) 4 sets of same questions in varying sequence will have to be generated.
- 5) Negative marking @ 1 mark for 5 wrong answers
- 6) Medium of Examination will be in English.
- 7) Examination will be of two hours duration.
- 8) Venue of Examination will be in Kolkata.
- 9) Examination will be conducted on a TAB
- 10) Training on the TAB will be provided prior to the commencement of the exam.
- 11) One day prior to the exam, biometric verification will be carried out for eligible candidates. Candidates will have to be present at the identified venue which will be informed to the candidates in due course.
- 12) After scrutiny of all applications, eligible candidates will be called for the biometric verification and will then be allowed to appear in the examination.
- 13) Venue, date and time of examination will be conveyed to eligible candidates through email**

SYLLABUS **for Written Examination**

Principles of Remote Sensing

Definition of Remote sensing, Advantages and limitations, Remote sensing process, Electromagnetic Radiation (EMR): EMR Spectrum and its properties, EMR wavelength regions and their applications, Atmospheric windows, Interaction of EMR with matter, Spectral signatures, Resolutions: Spectral, Spatial, Temporal and Radiometric; Spectral Signature and Response of Soil, Vegetation and Water; Basics of visual interpretation of satellite images

Orbits of satellite, Kepler's laws of motion, IRS Series of Satellites, LANDSAT, SPOT, IKONOS, QUICKBIRD, MODIS, RADARSAT, NOAA, TERRA, MOS and ERS, Brief introduction to Weather and Communication Satellites

Fundamentals of aerial photography, Vertical and Oblique aerial photography, Aerial cameras, Photogrammetry; Basic concepts of scale, object height and length, object area and perimeter, grayscale tone/colour of objects, Photo interpretation techniques, Stereo photogrammetry and stereovision, Parallax bar and its applications.

Photographic System: Cameras, Sensor classification: Active and Passive, along track and across track scanners, Infrared Scanners, Thermal Sensors and Microwave Sensors

Introduction to Thermal Infrared Radiation Properties: Kinetic Heat, Temperature, Radiant Energy and Flux, methods of transferring heat, Thermal properties of terrain: Thermal Capacity, Thermal conductivity, Thermal Inertia, Thermal Infrared Multispectral scanners, Thermal IR Remote sensing examples

Passive Microwave Sensors, Active Microwave Sensors, Side looking RADAR, SAR Interferometry

Principles of Geographic Information Systems (GIS)

Basic Concepts about spatial information, Philosophy and definition of GIS, features, pictures, variables: points, lines, areas, Position on the earth; Basics of map.

Fundamentals of Data Storage, Information Organization and Data Structure; Basic File Structures; Tabular Databases; Advantages of Databases, Types of Databases-hierarchical systems, network systems, relational systems and Object-oriented database systems (OODS), Data Models-Entity Relationship model, Relational Model, Data Structures; Raster Structures, Vector Structures.

GIS Data Requirement, sources and collection, Methods of data capture-scanning, digitization and associated errors, Conversion from Other Digital Sources, Attribute data input and management, Edge matching, creating digital data - remote sensing; generating data from existing data; Metadata; Different Kinds of geospatial data, Detecting and Evaluating Errors, Data Quality Measurement and Assessment, digital output options. Vector & Raster data query.

Raster data and structure, Local operations, Neighbourhood operations, Zonal operations, Distance measure operations, Spatial auto correlations, DEM generation, Spatial Modelling, combining data; terrain mapping finding and quantifying relationships; spatial interpolation.

Vector data base, Topological Relationships; Creation of Topology and Error Correction; Accuracy and Precision; The Importance of Error, Accuracy, and Precision, types of error, sources of error, data quality, Spatial interpolation, Overlay Operations and Buffering, Neighbourhood functions, Distance Measurement, Map Manipulation.

Global Navigation Satellite System (GNSS)

Introduction of Global Positioning System, Satellite constellation, GPS signals and data, Geo-positioning-Basic Concepts. NAVSTAR, GLONASS

General Knowledge and Reasoning

APPLICATION FORM

A) Position (SRF/JRF) for which this application is to be considered: _____

B) Project for which the candidate desires to be considered in order of preference

(i)

(ii)

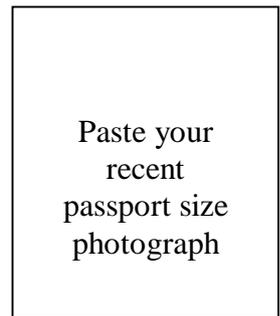
(iii)

(iv)

(v)

(vi)

(vii)



1. Name of the Candidate _____

2. Name of Father / Husband _____

3. Date of Birth (dd/mm/yyyy) _____

4. Gender : Male / Female

5. Category : General / SC / ST/ OBC-A / OBC-B

6. Current occupation and remuneration (if employed) _____

7. Name of the Organization with Address (if employed) _____

8. Address for communication

Name _____

Address _____

City _____ Pin _____ email _____

Phone _____

Fax _____

Mobile _____

9. Educational Qualifications (Starting from Secondary Examination)*

Examination	Council / University	Year of passing	Subjects	Percentage / Grade

@ Mention conversion factor, if any

*Enclose attested copies of all marksheets and testimonials

10. Professional Experience (enclose separate sheet, if required)

Sl. No.	Department/ Organization	Designation	Pay Scale	Duration		Nature of Job
				From	To	

11. Experience of using Remote Sensing & GIS software: _____

12. Whether NET / GATE / SLET qualified YES / NO, If YES write year of qualifying _____

13. Declaration: I hereby declare that all the information given by me in this application is true and correct to the best of my knowledge and belief. I am also aware that the position I am applied for is purely temporary with fixed remuneration and on contract basis for the duration of the project and does not have any possibility of being a permanent position at any point of time in future. I also note that if any of the above statements are found to be incorrect or false or any information or particulars have been suppressed or omitted in this from, I am liable to be disqualified for appearing in the interview, or if selected my appointment will be cancelled without any compensation in lieu of notice.

Date: _____

Signature of Candidate: _____