

**Syllabus and Scheme of Examination for the Post of Junior Laboratory
Assistant (Technical)- School of Physical Sciences.
Advertisement No. IIT Mandi/Recruit./NTS/2023/02 dated 22.03.2023**

Date: 25.09.2023

Time: 09:00 a.m. onwards

Venue: Physics Lab, Stable Complex, South Campus, IIT Mandi

There will be two stage examination.

Stage I : Written Examination

Stage II : Skill/Trade Test

Stage-I : Written Examination (Total Marks: 100, Time Duration: 02 hours)

The question paper will have two section as per details given below:

Section-I will be of 60 marks and questions will be MCQ type.

Section-II will be of 40 marks and will be descriptive type questions comprises of 8 questions each of 5 marks.

Stage II : Skill/Trade test will be conducted after completion of written examination.

General information about the exam:

- The MCQs based part will have 60 questions, each carrying 1 mark.
- The MCQs have negative marking for wrong answers. For a correct answer 1 mark will be awarded while for every wrong answer 0.25 marks will be deducted. The unanswered questions will not be considered for evaluation. (*i. e.*, no marks will be awarded for any question not attempted).
- Only one best suited answer has to be given for any MCQ. More than one answer will be treated as wrong answer.
- Use of only blue or black ballpoint pen is permitted to answer the questions and fill the form in exam hall. Use of ink pen/gel pen/pencil/whitener is not permitted.
- Use of calculator, cell phones, log book, periodic table, and any type of electronic device etc., are strictly prohibited.
- Medium of instructions/answers will be English only.
- Involvement in any malpractices will lead to disqualification
- Any additional instructions given during the selection process must be adhered/complied.

Final Selection:

- Examinations for Stage-I (Written Exam) and Stage-II (Skill Test) will be conducted for all the candidates.

- Final selection will be made on the scores obtained in the Stage-I (Written Exam), as the Stage-II (Skill Test) is of qualifying nature. But if a candidate fails to qualify in Stage-II (Skill Test), her/his candidature will not be considered further.
- Please note that for consideration in the merit list, a candidate has to secure minimum marks fixed by the committee in both exams at Stage-I and Stage-II – failing which institute will not make an offer of appointment even if vacancies go unfilled.

Syllabus (Stage I - Written examination)

Classical Mechanics: Newtonian mechanics conservation laws, Mechanics of small oscillations, Vectors and vector calculus

Electromagnetism: Electromagnetic induction and alternating current, Magnetic effect of current, Electromagnetic waves

Optics: Wave optics, Ray optics and optical instruments

Solid State Physics: Crystal structure, Electrons in Solids, Semiconductors, Magnetism, Superconductivity

Nuclear Physics: Properties of Nuclei, Nuclear decay, Nuclear models, Nuclear Reactions, Detectors

Electronics: Amplifiers and Field effect transistors, Oscillators and Multivibrators, Boolean algebra and Digital circuit, Clock and timing circuit

Electrical Measurements and Instrumentation: Fundamentals of Measurement, Analog Indicating Instruments, Oscilloscope, Bridge Circuits, AC bridges, Digital Instruments, Virtual Instrumentation

Note: It may be noted that apart from the topics detailed above, questions from other topics prescribed for the educational qualification of the post may also appear in the question paper.

Syllabus (Stage II – Skill Test)

Handling common instruments in physics/electronics lab, and computer operation skills.