



भारतीय प्रौद्योगिकी संस्थान खड़गपुर
INDIAN INSTITUTE OF TECHNOLOGY KHARAGPUR

No.: R/01/2020/NTRectt/JTS/ 6059

Date: July 01, 2022

NOTICE

Sub.: Schedule of Trade Test for the post of Junior Technical Superintendent against Advt. No. R/01/2020.

Ref.: No. R/01/2020/NTRectt/JTS/6037 dated June 16, 2022.

- In reference to the above, this is to notify that, the trade test for the post of Junior Technical Superintendent against advertisement no. R/01/2020 is scheduled to be held on **July 19, 2022 (Tuesday)**.
- Syllabus (specialization wise) for the trade test is enclosed as **Annexure-I**.
- The specialization of the individual candidate has been decided according to his/her qualification as declared at the time of application. Hence, if there is any change in the specialization as indicated in **Annexure-II**, he/she may send request through E-mail : recruitmentnts@adm.iitkqp.ac.in within 07.07.2022, subject to decision of the Trade Test Committee.
- No request for change of specialization will be entertained after 07.07.2022.
- The shortlisted candidates at **Annexure-II** are required to appear for the Trade Test as per the following schedule.

SCHEDULE OF THE TRADE TEST	
Date of Trade Test	: July 19, 2022 (Tuesday)
Reporting Time	: 9.30 AM
Time of Trade Test	: 11.00 AM to 1.00 PM
Duration of Trade Test	: 2 Hrs.
Reporting Venue	: F-116 (Bhatnagar Auditorium), Institute's Main Building

- **No separate call letter will be issued for the Trade Test.**

IMPORTANT INSTRUCTIONS

- The candidates should bring the call letter issued earlier at the time of Written Test along with any identity proof (**in original**) issued by Government Authority for personal verification (i.e. Passport / Voter Identity Card / Pan Card/ Aadhaar Card/ Any Identity Card issued by Competent Authority).
- The candidates should bring **all certificates/documents** etc. in **ORIGINAL** along with **one set self-attested copies** of the same in support of educational qualification, experience, category, etc.
- The candidates belonging to OBC category should bring Valid OBC (Non-Creamy Layer) Certificate issued by the Competent Authority in the Prescribed Format of Government of India.
- The candidates should bring "**No Objection Certificate**" if employed in Government/Semi Government Organizations / Autonomous Bodies, if the application is not sent through proper channel earlier.

(Registrar)
IIT Kharagpur

ANNEXURE - I

Sl. No.	Specialization	Detailed Syllabus
1	BIOSCIENCE	(1) Microbiological techniques: Preparation of culture media and bacterial plates, Preparation of solution and measurement of pH. Sterilization, autoclaving, Gram staining, Acid fast staining. (2) Biochemistry: Estimation of protein, sugar and nucleic acids, Spectrophotometry, SDS-PAGE, Western blotting, ELISA (3) Cell biology: Culture of mammalian cells, Immunofluorescence techniques, Bright field and Fluorescence microscopy, Confocal microscopy. RNA extraction and RT-PCR (4) Genetic Engineering: Plasmids and cloning vectors, Restriction enzymes, DNA ligation, transformation and cloning, Agarose gel electrophoresis, DNA sequencing. (5) Instrumentation: Basics and operation of centrifuge, use and calibration of pH meter, basics and operation of PCR thermocycler, basics and operation of water purification system, working of voltage stabilizer and UPS. (6) General knowledge regarding lab safety.
2	CHEMICAL ENGG	Analysis of Sample and Principle of Operation, Maintenance of followings: GC, FTIR, FESEM, XRF, BET, Hg Analyzer, AAS, UV-VIS, HPLC, XRD
3	CHEMISTRY	Organic : (1) Determination of unknown and known solid and liquid compounds : Solid samples (Oxalic acid, Citric acid, tartaric acid, Succinic acid, Resorcinol, Hydroquinone (quinol), Benzoic acid, Salicylic acid, Beta-Naphthol, Urea, Glucose, Lactose, Sucrose, Starch). Liquid samples (Formic acid, Acetic acid, Methanol, Ethanol, Acetone, Glycerol, Aniline, Methyl aniline, Dimethyl aniline, Benzaldehyde, Nitrobenzene, Benzylalcohol). (2) Functional group tests for alcohols, phenols, carbonyl and carboxylic acid group. (3) Acetylation of one of the following compounds: amines (aniline, o-, m-, ptoluidines and o-, m-, p-anisidine) and phenols (β -naphthol, vanillin, salicylic acid). Inorganic : Quantitative inorganic analysis [Permanganometry, Dichromatometry, Iodometry, Complexometry, Gravimetry, Spectrophotometry (verification of Beer's law)]. Physical : (1) Viscometry: Components and working principles of a viscometer, determination of viscosity of ethylene glycol, error analysis. (2) Potentio-metry: Working principles, instrumentation, thermodynamic principles, half-cell reaction and standard electrode potential. (3) Spectrophotometry: Basic instrumentations (light sources, detector etc.), UV-Vis and Fluorescence spectroscopy, Beer-Lambert law, Quantum yield. (4) pHmetry: Concept of electrodes, acid-base chemistry, pH of buffer solutions, sources of error in pH determination. (5) Surface tensiometry: Adhesion, cohesion, hydrophobic and hydrophilic interactions, Capillary rise, Principles of drop-weight method

Sl. No.	Specialization	Detailed Syllabus
4	CIVIL ENGG	(A) Hydraulics and water resources Engineering : (1) Orificemeter (2) Verification of Bernoulli's Theorem (3) Impact of Jet (4) Center of Pressure (5) Hydraulic Jump. (B) Geotechnical Engineering : (i) Determination of Specific gravity, (ii) Particle size analyses by sieve, (iii) Atterberg's limits tests (only Liquid Limit and Plastic Limit), (iv) Proctor compaction test, (iv) Direct shear test, (v) Unconfined Compressive Strength test. (C) Transportation Engineering : (1) Determination of flakiness index and elongation index of coarse aggregate as per IS: 2386 (Part I) (2) Determination of impact value of coarse aggregate as per IS: 2386 (Part IV) (3) Determination of penetration value of bitumen as per IS: 1203 (4) Determination of softening point of bitumen as per IS: 1205 (5) Measurement of road roughness using MERLIN apparatus. (D) Environmental Engineering : Measurement of water quality parameters - Dissolved Oxygen (DO), pH, Conductivity, Turbidity, Spectrophotometric analyses, Free chlorine residual. (E) Structural engineering : (1) Preparation of Reinforcements including cutting, bending, binding etc. for casting of Reinforced Concrete Beam (2) Sieve Analysis to determine grain size distribution of coarse and fine aggregates (3) Testing for workability of concrete, such as Slump Test, Compacting Factor test etc. (4) Non-Destructive Tests- Ultrasonic Pulse Velocity (UPV) and Rebound Hammer Test (5) Demonstration of procedure for Testing on Cements- standard consistency, initial and final setting time, compressive strength (6) Fixing and taking measurement with dial gauges
5	COMPUTER SCIENCE & ENGG	Basic programming skill in C and python; knowledge of basic data structures: arrays, lists, stack, queue, tree; searching and sorting algorithms; basic concepts of computer architecture, operating systems, and computer networks; designing, creating, and querying databases using MySQL; installing and configuring Windows OS based systems, including installing and configuring software; familiarity with Linux based systems, including knowledge of common Linux commands, installing and configuring Linux systems, installing and configuring software on Linux systems, basic shell scripting; installing and maintaining web servers, webpage creation: knowledge of html and javascript
6	ELECTRICAL ENGG	(1) Fundamental AC and DC Circuit Concepts, (2) Electrical Measurements Meggars, Multi meters and Digital Oscilloscopes, (3) Analog Circuits passive R L and C based Circuits, Electronic Operational Amplifier Circuits, Basic Power Supply, (4) Electrical Machines - Transformers, DC Machines and Induction Machines

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Sl. No.	Specialization	Detailed Syllabus
7	ELECTRONICS ENGG	(a) Basics of electronic components such as, resistors, capacitors, inductors, diodes, transistors, transmission lines, waveguides. (b) Familiarity and usage of PCB, Bread board and soldering iron. (c) Familiarity and Maintenance of instruments such as, Multimeter, LCR meter, Oscilloscope, Signal generator (low frequency and high frequency), Spectrum analyser, Network analyser, VSWR meter. (d) Measurement of voltage, current, power, resistance, capacitance, inductance, wavelength, s-parameters. (e) Frequency response and Transient response of electronic circuits / subsystems. (f) Basics of DC Power supply, Operational Amplifier and its applications, Digital circuits (combinational and sequential), Integrated Circuits (ICs). (g) Basics of Communication; Analog and Digital modulations techniques. (h) Basics of Microprocessors and Microcontrollers. (i) Basic principles of Computer Networking; Familiarity with different Connectors.
8	MECHANICAL ENGG	Trade specialization as per form: <i>Tool and Die Making</i> - Die Design, Types of die/tools, Types of machining, Grinding, Basic fitting operations, Different Machine tool, Different cutting tools, Tool geometry, Machining parameters, EDM and wire EDM, Press Tools, Jigs, Fixtures, Forging, specimen/sample preparation for metallography. Trade specialization as per form: <i>Foundry Technology</i> - Types of castings, design of patterns, types of moulds and cores, riser and gating design, Defects in Castings, Types of Tools , equipment & raw material, sand testing methods. Trade specialization as per form: <i>Fitter</i> - Machine tools and machining, basic operations on a lathe, milling, and drilling, pipe fittings, structural fittings, rivets, bolts, filing, heat tempering, grinding. Experience as per form: <i>Process engineer</i> - Fundamentals of process engineering, plant layout, process flow diagram, piping and instrumentation diagram, heat exchanger design, hydraulic calculations, and mass/energy balance calculations, Experience as per form: <i>Design engineer</i> - Load and stress analysis, material properties, deflection of beam, design of shaft for torsion, factor of safety, failure criteria, design of joint (welding and bonding) design for fatigue, Stresses and Strains, Tensile compressive and shear stresses and strains, Concept of Elasticity, Elastic limit and limit of proportionality, Concepts of fatigue, creep and stress concentration, Thermal stresses, Resilience, Bending Stresses, Shear Force and Bending Moment, Columns.
9	PHYSICS	Measurement using Vernier and Screw gauge; Measurement of focal length of lenses; Measurement of acceleration due to gravity using simple harmonic pendulum; Measurements on Electrical Circuits with resistors and capacitors

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Sl. No.	Application No.	Name of the candidate	Category	SPECIALIZATION
1	R0120JTS12687	KRISHANU MURMU	ST	BIOSCIENCE
2	R0120JTS11055	ANUP DOLAI	SC	CHEMICAL ENGG
3	R0120JTS10011	MOHAN RAO BOKARA	SC	CHEMISTRY
4	R0120JTS11645	SOUMIK CHATTERJEE	GN	CHEMISTRY
5	R0120JTS11646	SUROJIT DAS	SC	CHEMISTRY
6	R0120JTS11036	SRIKANTA PAL	GN	CIVIL ENGG
7	R0120JTS11609	SANKHA SUBHRA SARDAR	SC	CIVIL ENGG
8	R0120JTS11649	SOHAM ROY	GN	CIVIL ENGG
9	R0120JTS11686	SHOURIDEB DAS	SC	CIVIL ENGG
10	R0120JTS13023	SHYAMAL SAHA	SC	CIVIL ENGG
11	R0120JTS11294	HARSH GUPTA	OB	COMPUTER SCI. & ENGG.
12	R0120JTS12452	AMRIT KUMAR	OB	COMPUTER SCI. & ENGG.
13	R0120JTS10014	AMAL SAHA	SC	ELECTRICAL ENGG
14	R0120JTS10795	GOLAK BIHARI MAJHI	OB	ELECTRICAL ENGG
15	R0120JTS10947	ANIKET NANDI	SC	ELECTRICAL ENGG
16	R0120JTS11784	SOMSHUBHRA BHANJA	OB	ELECTRICAL ENGG
17	R0120JTS11911	GOPAL CHANDRA BEHERA	OB	ELECTRICAL ENGG
18	R0120JTS12073	PIJUSH MAJI	GN	ELECTRICAL ENGG
19	R0120JTS12137	SUBHENDU BANERJEE	GN	ELECTRICAL ENGG
20	R0120JTS12568	ARKAPRAKASH MONDAL	GN	ELECTRICAL ENGG
21	R0120JTS12768	SUDIP MISTRY	OB	ELECTRICAL ENGG
22	R0120JTS10884	SHAHNAWAZ ANSARI	OB	ELECTRONICS ENGG
23	R0120JTS11274	BIKASH MONDAL	SC	ELECTRONICS ENGG
24	R0120JTS11325	ARNAB SAHA	SC	ELECTRONICS ENGG
25	R0120JTS11532	RAMESH GHOSH	GN	ELECTRONICS ENGG
26	R0120JTS11802	MAHUYA ROY	OB	ELECTRONICS ENGG
27	R0120JTS12033	ANKUR AGARWAL	GN	ELECTRONICS ENGG
28	R0120JTS12282	SHIBAJI RAM GHOSH	OB	ELECTRONICS ENGG
29	R0120JTS12425	JITEN GARAI	OB	ELECTRONICS ENGG
30	R0120JTS12813	PRAVIN KUMAR	OB	ELECTRONICS ENGG
31	R0120JTS10065	DHIRENDRA BEHERA	SC	MECHANICAL ENGG.
32	R0120JTS10069	ALOK KUMAR SHARMA	GN	MECHANICAL ENGG.
33	R0120JTS10103	ABHISHEK PAL	GN	MECHANICAL ENGG.
34	R0120JTS10220	PRANAB KR GUIN	OB	MECHANICAL ENGG.
35	R0120JTS10572	ASIFUR RAHMAN	OB	MECHANICAL ENGG.
36	R0120JTS10590	KRUSHNA CHANDRA SAHU	OB	MECHANICAL ENGG.
37	R0120JTS11149	PRABHU PRASAD SAHU	OB	MECHANICAL ENGG.
38	R0120JTS11226	SAURABH SUMAN	OB	MECHANICAL ENGG.
39	R0120JTS11518	PURUSHOTTAM KUMAR PAUL	OB	MECHANICAL ENGG.
40	R0120JTS12122	PITTA KRISHNA REDDY	OB	MECHANICAL ENGG.
41	R0120JTS12356	SUBHABRATA MONDAL	GN	MECHANICAL ENGG.
42	R0120JTS12399	DIBYAJYOTI SAHU	OB	MECHANICAL ENGG.
43	R0120JTS12559	PRADIPTA KUMAR BEHERA	SC	MECHANICAL ENGG.
44	R0120JTS12576	KALLOL PATRA	OB	MECHANICAL ENGG.
45	R0120JTS12698	AMRESH KUMAR	SC	MECHANICAL ENGG.
46	R0120JTS10592	CHANDAN KUMAR RAHTEY	OB	PHYSICS
47	R0120JTS11648	AVIRUP DAS	GN	PHYSICS

