



GOVERNMENT OF ASSAM
DIRECTORATE OF TECHNICAL EDUCATION, ASSAM
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No.TE(E)A-46/2019/ 1927

Dated 18th March, 2020

**RECRUITMENT FOR DHEMAJI ENGINEERING COLLEGE & FIVE NEWLY ESTABLISHED
POLYTECHNICS INCLUDING ADDITIONAL POSTS OF EXISTING INSTITUTIONS**

IMPORTANT NOTICE

In continuation to the Advertisement **No.05/2020** published vide No.Jansanyog/D/10714/19 dated 25th February 2020 and Addendum published vide No.Jansanyog/D/11244/19 dated 8th March 2020, it is for the information to all the eligible applicants who have successfully submitted the online application for the post of Junior Instructor in Dhemaji Engineering College & Five Newly established polytechnics including additional posts of existing Institutions that they will have to appear in a Written Test as per the structure given below.

Mode of Selection:

Phase-I: Written Test for all applicants.

- The syllabus of the Written Test for all the Trades(70 Nos. of MCQs) will be in the level of ITI as attached.

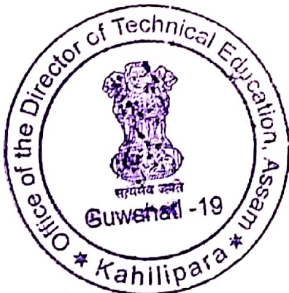
STRUCTURE OF THE WRITTEN TEST FOR RECRUITMENT


Number of Multiple Choice Questions (MCQ)				Duration
General English	Logical Reasoning & Quantitative Aptitude	Trades (as per syllabus attached)	Total	
15	15	70	100	2 hours

- In the Written Test 4 marks will be awarded for every correct answer and 1 mark will be deducted for every wrong answer.

Phase II: Workshop Proficiency Test:

- A practical test will be conducted for proficiency in Workshop for the Shortlisted candidates based on Written Test.

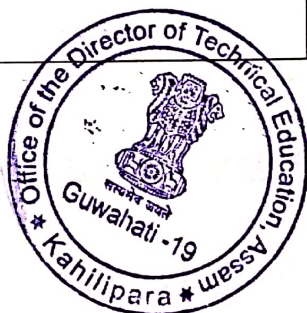



Director of Technical Education, Assam
Kahilipara, Guwahati -19

SYLLABUS
FOR
TRADE RELATED COMPONENTS OF THE WRITTEN TEST (70 MCQs) FOR
RECRUITMENT OF JUNIOR INSTRUCTOR UNDER
DIRECTORATE OF TECHNICAL EDUCATION, ASSAM

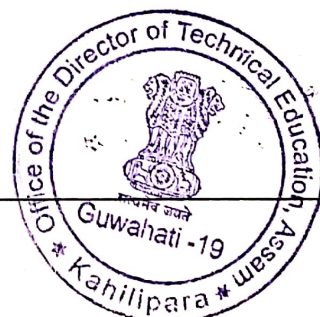
I. WORKSHOP CALCULATION & SCIENCE

SN	Description- Workshop Calculation	Description - Workshop Science
1	Unit: Systems of unit- FPS, CGS, MKS/SI unit, unit of length, Mass and time, Conversion of units	Material Science: properties -Physical & Mechanical, Types -Ferrous & Non-Ferrous, difference between Ferrous and Non-Ferrous metals, introduction of Iron, Cast Iron, Wrought Iron, Steel, difference between Iron and Steel, Alloy steel, carbon steel, stainless steel, Non- Ferrous metals, Non-Ferrous Alloys.
2	Fractions: Fractions, Decimal fraction, L.C.M., H.C.F., Multiplication and Division of Fractions and Decimals, conversion of Fraction to Decimal and vice versa. Simple problems using Scientific Calculator.	Mass .Weight and Density : Mass, Unit of Mass, Weight, difference between mass and weight, Density, unit of density, specific gravity of metals.
3	Square Root: Square and Square Root, method of finding out square roots, Simple problem using calculator. Ratio & Proportion : Simple calculation on related problems.	Speed and Velocity: Rest and motion, speed, velocity, difference between speed and velocity, acceleration, retardation, equations of motions, simple related problems.
4	Percentage: Introduction, Simple calculation. Changing percentage to decimal and fraction and vice-versa.	Work, Power and Energy: work, unit of work, power, unit of power, Horse power of engines, mechanical efficiency, energy, use of energy, potential and kinetic energy, examples of potential energy and kinetic energy.
5	Algebra: Addition, Subtraction, Multiplication, Division, Algebraic formula, Linear equations (with two variables).	Heat & Temperature: Heat and temperature, their units, difference between heat and temperature, boiling point, melting point, scale of temperature, relation between different scale of temperature, Thermometer, pyrometer, transmission of heat, conduction, convection, radiation.
6	Mensuration: Area and perimeter of square, rectangle, parallelogram, triangle, circle, semi circle, Volume of solids - cube, cuboid, cylinder and Sphere. Surface area of solids -cube, cuboid, cylinder and Sphere.	Basic Electricity: Introduction, use of electricity, how electricity is produced, Types of current_ AC, DC, their comparison, voltage, resistance, their units. Conductor, insulator, Types of connections - series, parallel, electric power, Horse power, energy, unit of electrical energy.
7	Trigonometry: Trigonometrical ratios, measurement of angles. Trigonometric tables.	Levers and Simple Machines: levers and its types. Simple Machines, Effort and Load, Mechanical Advantage, Velocity Ratio, Efficiency of machine, Relationship between Efficiency, velocity ratio and Mechanical Advantage.

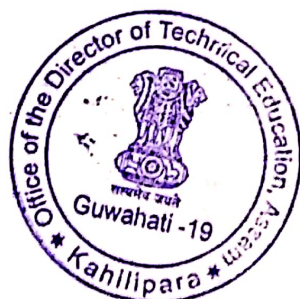


II. ENGINEERING DRAWING

SN	CONTENTS
1	<p>Engineering Drawing: Introduction and its importance</p> <ul style="list-style-type: none"> • Relationship to other technical drawing types • Conventions • Viewing of engineering drawing sheets. • Method of Folding of printed Drawing Sheet as per BIS SP:46-2003
2	<p>Drawing Instruments : their Standard and uses</p> <ul style="list-style-type: none"> • Drawing board, T-Square, Drafter (Drafting M/c), Set Squares, Protractor. • Drawing Instrument Box (Compass, Dividers, Scale, Diagonal Scales etc). • Pencils of different Grades, Drawing pins / Clips.
3	<p>Lines :</p> <ul style="list-style-type: none"> • Definition, types and applications in Drawing as per BIS SP:46-2003 • Classification of lines (Hidden, centre, construction, Extension, Dimension, Section) • Drawing lines of given length (Straight, curved) • Drawing of parallel lines, perpendicular line • Methods of Division of line segment
4	<p>Drawing of Geometrical Figures:</p> <ul style="list-style-type: none"> • Definition, nomenclature and practice of angle measurement and its types, method of bisecting. • Triangle - different types • Rectangle, Square, Rhombus, Parallelogram. • Circle and its elements.
5	<p>Lettering and Numbering as per BIS SP46-2003: -</p> <ul style="list-style-type: none"> • Single Stroke, Double Stroke, inclined, Upper case and Lower case.
6	<p>Dimensioning:</p> <ul style="list-style-type: none"> • Definition, types and methods of dimensioning (functional, nonfunctional and auxiliary) • Types of arrowhead • Leader Line with text
7	<p>Free hand drawing of:</p> <ul style="list-style-type: none"> • Lines, polygons, ellipse, etc. • Geometrical figures and blocks with dimension • Transferring measurement from the given object to the free hand sketches.
8	<p>Sizes and Layout of Drawing Sheets:</p> <ul style="list-style-type: none"> • Basic principle of Sheet Size • Designation of sizes • Selection of sizes • Title Block, its position and content • Borders and Frames (Orientation marks and graduations) • Grid Reference • Item Reference on Drawing Sheet (Item List)

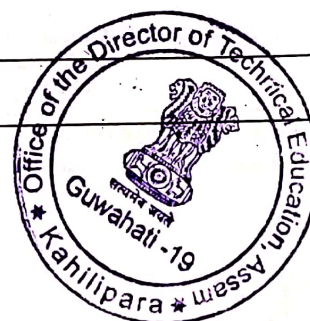


9	Method of presentation of Engineering Drawing <ul style="list-style-type: none"> • Pictorial View • Orthogonal View • Isometric view
10	Symbolic Representation (as per BIS SP:46-2003) of: <ul style="list-style-type: none"> • Fastener (Rivets, Bolts and Nuts) - Bars and profile sections • Weld, brazed and soldered joints. • Electrical and electronics element • Piping joints and fittings
11	Construction of Scales and diagonal scale
12	Practice of Lettering and Title Block
13	Dimensioning practice: <ul style="list-style-type: none"> • Position of dimensioning (unidirectional, aligned, oblique as per BIS SP:46-2003) • Symbols preceding the value of dimension and dimensional tolerance. • Text of dimension of repeated features, equidistance elements, circumferential objects.
14	Construction of Geometrical Drawing Figures: <ul style="list-style-type: none"> • Different Polygons and their values of included angles. Inscribed and Circumscribed polygons. • Conic Sections (Ellipse & Parabola)
15	Drawing of Solid figures (Cube, Cuboids, Cone, Prism, Pyramid, Frustum of Cone and Pyramid.) with dimensions.
16	Free Hand sketch of hand tools and measuring tools used in respective trades.
17	Projections: <ul style="list-style-type: none"> • Concept of axes plane and quadrant. • Orthographic projections • Method of first angle and third angle projections (definition and difference) • Symbol of 1st angle and 3rd angle projection as per IS specification.
18	Drawing of Orthographic projection from isometric/3D view of blocks
19	Orthographic Drawing of simple fastener (Rivet, Bolts, Nuts & Screw)
20	Drawing details of two simple mating blocks and assembled view.

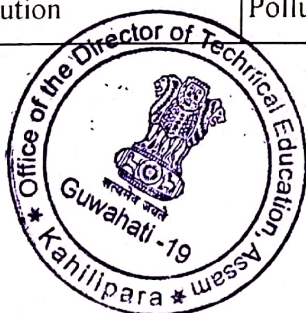


]]]. EMPLOYABILITY SKILL

1. IT Literacy	
Basics of Computer	Introduction, computer and its applications, Hardware and peripherals, Switching on-Starting and shutting down computer.
Computer Operating System	Basics of Operating System, WINDOWS, User interface of Windows OS, Create, Copy, Move and delete Files and Folders, Use of External memory like pen drive, CD, DVD etc., Use of common applications.
Word Processing and Worksheet	Basic operating of Word Processing, Creating, opening and closing documents, Use of shortcuts, Creating and Editing Text, Formatting the text, Insertion & creation of tables. Printing document. Basics of Excel worksheet, understanding basic commands, creating simple worksheets, understanding sample worksheets, use of simple formulas and functions, Printing of simple excel sheets.
Computer Networking and Internet	Basic of computer Networks (using real life examples), Definitions of Local Area Network (LAN), Wide Area Network (WAN), Internet, Concept of Internet (Network of Networks), Meaning of World Wide Web (WWW), Web browser, Website, Web page and Search Engines. Accessing the Internet using web browser, Downloading and printing web pages, Opening an email account and use of email. Social media sites and its implication. Information Security and antivirus tools, Do's and Don'ts in Information Security, Awareness of IT - ACT, types of cyber crimes.
2. Communication Skills	
Introduction to Communication Skills	Communication and its importance Principles of Effective communication Types of communication - verbal, non verbal, written, email, talking on phone. Non-verbal communication- characteristics, components-Para- language Body language Barriers to communication and dealing with barriers. Handling nervousness/ discomfort.
Listening Skills	Listening-hearing and listening, effective listening, barriers to effective listening, guidelines for effective listening. Triple- A Listening - Attitude, Attention & Adjustment. Active Listening Skills.
Motivational Training	Characteristics essential to achieving success. The power of positive attitude. Self awareness Importance of commitment Ethics and values Ways to motivate oneself. Personal goal setting and employability planning.
Facing Interviews	Manners, etiquettes, dress code for an interview. Do's & Don'ts for an interview.
Behavioral Skills	Problem solving, confidence building, attitude.



3. Entrepreneurship Skills	
Concept of Entrepreneurship	Entrepreneur - Entrepreneurship - Enterprises: Conceptual issue Entrepreneurship vs. management, Entrepreneurial motivation. Performance & Record, Role & Function of entrepreneurs in relation to the enterprise & relation to the economy, Source of business ideas, Entrepreneurial opportunities, and the process of setting up a business.
Project Preparation & Marketing Analysis	Qualities of a good Entrepreneur, SWOT and Risk Analysis. Concept & application of PLC, Sales & distribution management. Difference between small scale & large scale business, Market survey, Method of marketing, Publicity and advertisement, Marketing mix.
Institution's Support	Preparation of project. Role of various schemes and Institutes for self-employment i.e. DIC, SIDA, SISI, NSIC, SIDO, Idea for financing/ non-financing support agencies to familiarize with the Policies/ Programmes & procedure & the available scheme.
Investment Procurement	Project formation, feasibility, Legal formalities i.e., Shop Act, Estimation & costing, Investment procedure - Loan procurement - Banking processes.
4. Productivity	
Benefits	Personal/ Workman - Incentive, Production linked Bonus, Improvement in living standard.
Affecting Factors	Skills, Working Aids, Automation, Environment, Motivation - How it improves or slows down productivity.
Comparison with Developed Countries	Comparative productivity in developed countries (viz. Germany, Japan and Australia) in selected industries e.g. Manufacturing, Steel, Mining, Construction etc. Living standards of those countries, wages.
Personal Finance Management	Banking processes, Handling ATM, KYC registration, Safe cash handling, Personal risk and insurance.
5. Occupational Safety, Health and Environment Education	
Safety & Health	Introduction to occupational safety and health importance of safety and health at workplace.
Occupational Hazards	Basic Hazards, Chemical Hazards, Vibroacoustic Hazards, Mechanical Hazards, Electrical Hazards, Thermal Hazards. Occupational health, Occupational hygiene, Occupational Diseases/ Disorders & its prevention.
Accident & Safety	Basic principles for protective equipment. Accident prevention techniques - control of accidents and safety measures.
First-Aid	Care of injured & sick at the workplaces, First-Aid & Transportation of sick person.
Basic Provisions	Idea of basic provision legislation of India. Safety, health, welfare under legislative of India.
Ecosystem	Introduction to Environment. Relationship between society and environment, Ecosystem and factors causing imbalance.
Pollution	Pollution and pollutants including liquid, gaseous, solid and hazardous waste.



Energy Conservation	Conservation of energy, re-use and recycle.
Global Warming	Global warming, climate change and Ozone layer depletion.
Ground Water	Hydrological cycle, Ground and surface water, Conservation and Harvesting of water.
Environment	Right attitude towards environment, Maintenance of in-house environment.
6. Labour Welfare Legislation	
Welfare Acts	Benefits guaranteed under various acts- Factories Act, Apprenticeship Act, Employees State Insurance Act (ESI), Payment Wages Act, Employees Provident Fund Act, The Workmen's Compensation Act.
7. Quality Tools	
Quality Consciousness	Meaning of quality, Quality characteristic.
Quality Circles	Definition, Advantage of small group activity, Objectives of quality circle, Roles and function of quality circles in organization, Operation of quality circle. Approaches to starting quality circles, Steps for continuation quality circles.
Quality Management System	Idea of ISO 9000 and BIS systems and its importance in maintaining qualities.
House Keeping	Purpose of House-keeping, Practice of good housekeeping.
Quality Tools	Basic quality tools with a few examples.

