



सं : E-MUM -05/1/2020-Admin

दिनांक : 26.02.2024

रिक्ति की सूचना

[रोजगार समाचार 24 फरवरी - 1 मार्च 2024, विज्ञापन संख्या - 04/2024 क्रमांक 1 पृष्ठ संख्या 27 से 29 (EN48/39) देखें]

दीपस्तंभ और दीपपोत निदेशालय, मुंबई महाराष्ट्र मे वेतन बैंड पीबी-1 5200-20200 और ग्रेड वेतन रुपये 2800/- (पे मैट्रिक्स (सातवां वेतन आयोग) पर लेवल-5) में नौवहन सहायक ग्रेड-III के 06 (छह) पदों को भरने के लिए पात्र भारतीय नागरिकों से आवेदन आमंत्रित किए जाते हैं। पूर्ण विवरण अर्थात्. पद का नाम, आयु, शैक्षणिक योग्यता निम्नलिखित है:-

| पद का नाम | आयु सीमा | आवश्यक शैक्षणिक एवं अन्य योग्यताएं |
|--|--|--|
| (1) | (2) | (3) |
| नौवहन सहायक ग्रेड-III | 18 से 27 वर्ष के बीच. (केंद्र सरकार द्वारा समय-समय पर जारी आदेशों के अनुसार छूट)। आयु सीमा निर्धारित करने की महत्वपूर्ण तिथि आवेदन प्राप्त करने की अंतिम तिथि यानी 26.03.2024 होगी) | केंद्र सरकार या राज्य सरकार द्वारा मान्यता प्राप्त संस्थान से इलेक्ट्रॉनिक्स या दूरसंचार या इलेक्ट्रॉनिक्स और संचार या इलेक्ट्रिकल और इलेक्ट्रॉनिक्स में डिप्लोमा। |
| तैनाती का जगह | पदों की संख्या और आरक्षण | आवेदन पत्र भेजना का पत्ता |
| (4) | (5) | (6) |
| तैनाती मुंबई निदेशालय के तहत महाराष्ट्र राज्य और दक्षिण गुजरात में किसी भी लाइट हाउस स्टेशन पर होगी और भारत में कहीं भी स्थानांतरित किया जा सकता है। | 06 (छह) (03- अनारक्षित, 01- आर्थिक रूप से कमजोर वर्ग, 02- अन्य पिछड़ा वर्ग) * 06 पदों में से 1 पद भूतपूर्व सैनिक के लिए आरक्षित है *06 पदों में से 1 पद बेंचमार्क दिव्यंग व्यक्ति के लिए आरक्षित है (Specific Learning Disability (SLD) or Multiple Disability (MD) [(Combination of Hearing Handicapped(HH) + One Leg affected (OL) or One Arm Affected (OA) or Dwarfism (DW) or Acid Attack Victim (AAV) or (LC) if OA or OL]) * उक्त पद को दिव्यांग व्यक्ति के लिए उपयुक्त माना गया है, अतः दिव्यांग व्यक्ति भी उक्त पद हेतु आवेदन कर सकते हैं। | निदेशक , दीपस्तंभ और दीपपोत निदेशालय, दीप भवन , घाटकोपर (पूर्व) एम जी रोड, मुंबई - 400077 |

आवेदन प्राप्त करने की अंतिम तिथि और समय **26.03.2024** को **1700** बजे है। उत्तर पूर्व क्षेत्र यानी असम, मेघालय, अरुणाचल प्रदेश, मिजोरम, मणिपुर, नागालैंड, त्रिपुरा, सिक्किम, जम्मू और कश्मीर राज्य के लद्दाख डिवीजन, हिमाचल प्रदेश के चंबा जिले के पांगी उप-मंडल के लाहौल और स्पीति जिले, अंडमान और के संबंध में निकोबार द्वीप समूह और लक्षद्वीप द्वीप समूह में अंतिम तिथि समापन तिथि से 7 दिन अधिक होगी। अंतिम तिथि एवं समय के बाद प्राप्त आवेदनों पर विचार नहीं किया जाएगा। हालाँकि, सभी के लिए आयु की गणना **26.03.2024** के अनुसार की जाएगी। आवेदन निदेशक, दीपस्तंभ और दीपपोत निदेशालय, "दीप भवन" एमजी रोड, सत्यम शॉपिंग सेंटर के सामने, घाटकोपर पूर्व, मुंबई, महाराष्ट्र- 400077 को भेजा जाना है, जिसके ऊपर "नौवहन सहायक ग्रेड-III के पद के लिए आवेदन" लिखा होना चाहिए। अधिमानतः स्पीड पोस्ट/पंजीकृत डाक द्वारा। डाक में किसी भी देरी के लिए विभाग जिम्मेदार नहीं होगा। इस विज्ञापन से संबंधित कोई भी परिशिष्ट/शुद्धिपत्र केवल विभागीय वेबसाइट www.dgll.nic.in पर प्रकाशित किया जाएगा और इसे रोजगार समाचार/किसी अन्य मीडिया में प्रकाशित नहीं किया जाएगा।

निदेशक (प्रभारी)



No. E-MUM -05/1/2020-Admin

Dated: 26.02.2024

NOTICE OF VACANCY

[Refer Employment News 24 February – 1 March 2024, Advt No – 04/2024 Sr. No 1 Page No 27 to 29 (EN 48/39)]

Applications are invited from the eligible Indian citizens for filling up 06 (Six) posts of Navigational Assistant Grade -III in pay band PB1 5200-20200 with Grade Pay Rs. 2800/- (Level-5 on Pay Matrix (7th Pay Commission)), in Mumbai Directorate by the Director of Lighthouses & Lightships, Mumbai, Maharashtra State. Further details viz. name of the post, age, educational qualification are as under: -

| Name of the Post | Age Limit | Educational and Others Qualifications required |
|--|--|--|
| (1) | (2) | (3) |
| Navigational Assistant Grade -III | Between 18 to 27 years. (Relaxable as per orders issued by the Central Government from time to time). The crucial date for determining the age limit shall be last date for receipt of application i.e. 26.03.2024) | Diploma in Electronics or Telecommunication or Electronics and Communication or Electrical and Electronics from an Institution recognized by Central Government or State Government. |
| Place of Posting | No. of Post and reservation | Application to be sent to |
| (4) | (5) | (6) |
| Initial posting shall be at any Lighthouse station in Maharashtra State and South Gujarat under Mumbai Directorate and liable to be transferred anywhere in India. | 06 (Six) (03- UR, 01- EWS, 02-OBC) *Out of 06 vacancies 1 is reserved for Ex - service man *Out of 06 vacancies 1 is reserved for PwBD (Specific Learning Disability (SLD) or Multiple Disability (MD) [(Combination of Hearing Handicapped(HH) + One Leg affected (OL) or One Arm Affected (OA) or Dwarfism (DW) or Acid Attack Victim (AAV) or (LC) if OA or OL]] *The post is identified as suitable for person with disabilities. Persons with disability can also apply for the post. | The Director of Lighthouses and Lightships, Deep Bhavan, Opp Satyam Shopping Centre, M.G Road, Ghatkopar East, Mumbai 400 077, Maharashtra |

The last date and time for receipt of applications is **26.03.2024** at **1700 Hrs.** In respect of North East Region i.e. Assam, Meghalaya, Arunachal Pradesh, Mizoram, Manipur, Nagaland, Tripura, Sikkim, Ladakh Division of Jammu and Kashmir State, Lahaul and Spiti District of Pangi Sub-division of Chamba District of Himachal Pradesh, Andaman and Nicobar Islands and Lakshadweep Islands the last date will be 7 days more than from the closing date. The applications received after the last date & time will not be entertained. However, Age shall be reckoned as on **26.03.2024** for all. **The applications should strictly be forwarded to The Director, Directorate of Lighthouses and Lightships, “Deep Bhavan” M G Road, Opp Satyam Shopping Centre, Ghatkopar East, Mumbai, Maharashtra- 400077** superscribed with “Application for the post of Navigational Assistant Grade -III” preferably by Speed Post/Registered Post. Department will not be responsible for any postal delay. Any addendum /corrigendum regarding this advertisement will be published in Departmental website www.dgll.nic.in only and it shall not be published in employment news/ any other media.

Director (In Charge)

16. Qualification: (fill in only those qualifications prescribed for the posts applied for)

| (a) Academic | Qualification | University/ Board | Year of Passing | Subjects | Marks / % Obtained |
|--|---------------|----------------------|--------------------|----------|-----------------------|
| S.S.C. / X / Matriculation | | | | | |
| Higher Secondary / XII /Intermediate | | | | | |

Degree/Diploma from an institution recognized by Central Government or State Government

| (b) Technical | Qualification | University/ Board | Year of Passing | Discipline | Marks / % Obtained |
|----------------------------|---------------|----------------------|--------------------|------------|-----------------------|
| Diploma | | | | | |
| Any Other Qualification | | | | | |

17. Details of previous & present employment held (in chronological order starting from present position backward) (Attach separate sheet, if required)

| Name & Address of Employer | Designation & Scale of Pay | Date from | Date to | Nature of Job | Length of the service |
|-------------------------------|-------------------------------|-----------|---------|------------------|--------------------------|
| | | | | | |
| | | | | | |

18. Document attached in proof of: (Indicate in relevant boxes indicated below;

- Matric/SSCL Certificate (for DOB Proof)
 Qualification Certificates
 Mark list of all semester/year
 Community Certificate: SC/ST/OBC
 Disability Certificate - PwD
 Discharge Certificate for Ex-SM
 Self-Declaration: OBC candidate
 No Objection Certificate
 Experience Certificate

19. If selected, minimum time for joining the post:

20. Have you ever been detained in Police custody? Or convicted by Court of Law? Or any criminal case is pending or contemplated by Court of Law? Yes No
 If any of this is Yes, give complete details thereto on separate paper.

21. Declaration:

"I hereby declare that all the statements made by me in the application are true and complete to the best of my knowledge and belief and nothing has been concealed or suppressed. I also understand that in case, any of my statement is found untrue during any stage of recruitment or thereafter, shall disqualify me for the post and I shall be liable for any action under the extant rules and my services are liable to be terminated without giving any notice or reason thereof."

Date:

Place:

\$

Signature of Candidate

EXAMINATION PROCEDURE AND SYLLABUS FOR TECHNICAL SUBJECT FOR RECRUITMENT TO THE POSTS OF NAVIGATIONAL ASSISTANT GRADE III, TECHNICIAN (ELECTRONICS), TECHNICIAN (ELECTRICAL), TECHNICIAN (DIESEL), TECHNICIAN (GENERAL) AND RADIO TECHNICIAN:

The examination shall be multiple choice question (MCQ). There will be 100 questions of one mark each from the following subjects.

| Sl.No | Subject | Marks |
|-------|---|-------|
| 1 | General knowledge/Aptitude test (numerical aptitude/qualitative aptitude/quatitative aptitude/reasoning etc.) | 40 |
| 2 | Technical* | 60 |
| | Total | 100 |

Note: * Technical subject will be varying as per the post.

There will be negative mark in written examination and 1/3rd of the mark shall be deducted for each wrong answer. However, no marks will be deducted for the questions which were kept unattended. The qualified candidates has to under go a trade test which will be of qualifying in nature. The committee shall fix qualifying standard in the trade test. The candidate who qualify in the trade test will be considered for final selection on the basis of their merit in the written examination.

Mobile phones, Calculators or any other devices will not be allowed in the examination hall.

The qualifying/cut off marks will be decided by the concerned recruitment committee constituted by various Directorates.

WARNING:

DGLL has not appointed any agencies/agents or centers for action on its behalf. Candidates are warned against any such claims made by the persons/agencies. Candidates are selected purely as per the merit. Please beware unscruplus element and not fall in their trap. Candidates attempting to influence the Director directly or indirectly shall be disqualified and legal action shall be intiated against them.

Syllabus for the post of Navigational Assistant Grade III

Part A – General knowledge/Aptitude test (numerical aptitude/qualitative aptitude/quantitative aptitude/reasoning etc.)

Part B - Technical

Syllabus for technical subject

| | |
|------------------------------------|--|
| Electronic components & materials: | Conductors, semiconductor & insulators, magnetic materials, jointing & cleaning materials for U/G copper cables & OFC; cells and batteries (chargeable and non-chargeable) relays, Switches, MCB & Connectors. |
| Electronic Devices and circuits | PN junction diodes, Thyristor; Diode and triode circuits; junction transistors; Amplifiers; oscillator; multivibrator; counters; rectifiers; inverter and UPS. |
| Digital Electronics | Number system & Binary codes; Boolean Algebra & Logic gates; Combinational & Sequential logic circuits, A/D & D/A converter, counters; memories |
| Linear Integrated circuit | Introduction to operational Amplifier; Linear applications; Non-Linear applications; Voltage regulators, Timers, Phase lock loop. |
| Electronic Measurements | Measuring systems; basic principles of measurement, range extension methods, cathode ray oscilloscope, LCD, LED panel; Transducers. |
| Communication Engineering | Introduction to communication, Modulation techniques, multiplexing techniques, wave propagation, transmission line characteristics, OFC, Fundamentals of Public Address system, Electronic exchange, basics of Radar, Cellular and Satellite Communication. Basic knowledge of wave propagation, VSAT and microwave antennas, operation of VHF sets, transceivers. |
| Basic Electrical Engineering | DC Circuits, AC Fundamentals; Magnetic, Thermal and chemical effects of Electric current; Earthing – Installation, Maintenance, Testing |
| Equipments | Knowledge of Voltage stabilizers, Isolation transformers, AMF panel for generators, Different types of timers and switching circuits. |
| Solar power plant | Basic knowledge of solar power plants, different types of Solar panels, MPPT, Mini Charge Regulators, solar power conditioning units etc. |
| Aids to Navigation | Basic knowledge of marine lanterns, Racons, DGPS, NAVTEX, AIS, GPS etc. |
| Basic concepts: | Concepts of resistance, inductance, capacitance, and various factors affecting them Concepts of current, voltage, power, energy and their units |
| Circuit law: | Kirchhoff's law, Simple Circuit solution using network theorems |

| | |
|---------------------------------------|---|
| Magnetic Circuit: | Concepts of flux, mmf, reluctance, Different kinds of magnetic materials, Magnetic calculations for conductors of different configuration eg straight, circular, solenoidal, etc Electromagnetic induction, self and mutual induction |
| AC Fundamentals | Instantaneous, peak, RMS and average values of alternating waves, Representation of sinusoidal wave form, simple series and parallel AC Circuits consisting of RL and C, Resonance, Tank Circuit Poly Phase system – star and delta connection, 3 phase power, DC and sinusoidal response of R-Land R-C circuit |
| Measurement and measuring instruments | Measurement of power (1 phase and 3 phase, both active and re-active) and energy, 2 wattmeter method of 3 phase power measurement, Measurement of frequency and phase angle Ammeter and voltmeter (both moving coil and moving iron type), extension of range wattmeter, Multimeters, earth Megger, insulation megger. |
| Electrical Machines : | (a) DC Machine – Construction, Basic Principles of DC motors and generators, their characteristics, speed control and starting of DC Motors Method of braking motor, 17 Losses and efficiency of DC Machines (b) 1 phase and 3 phase transformers – Construction, Principles of operation, equivalent circuit, voltage regulation, OC and SC Tests, Losses and efficiency Effect of voltage, frequency and wave form on losses Parallel operation of 1 phase /3 phase transformers Auto transformers (c) 3 phase induction motors, rotating magnetic field, principle of operation, equivalent circuit, torque-speed characteristics, starting and speed control of 3 phase induction motors Methods of braking, effect of voltage and frequency variation on torque speed characteristics Fractional Kilowatt Motors and Single Phase Induction Motors: Characteristics and applications |
| Utilization of Electrical Energy | Illumination, Electric heating, Electric welding, Electroplating, Electric drives and motors |
| Protective device | Basic knowledge of earthing, lightning conductor, surge protector and isolation transformer. |
| Fire & fire fighting | Basic knowledge of different kinds of fire and fire fighting equipments. |
| Solar power plant | Basic knowledge of solar power plants, different types of Solar panels, MPPT, Mini Charge Regulators, solar power conditioning units etc. |

Syllabus for the post of Technician (Electronics)

Part A – General knowledge/Aptitude test (numerical aptitude/qualitative aptitude/quaitative aptitude/reasoning etc.)

Part B - Technical

Syllabus for technical subject

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|------------------------------------|---|
| Atomic Structure | Atomic model, Energy levels, Energy bands, Important Energy bands in Crystal |
| Semi-conductor Physics | Bands in Semi-conductor-conductor, commonly used Semi-conductors, Energy band description of Semi-conductor, Effect of temperature on Semi-conductor, Hole current, Intrinsic& Extrinsic Semi-conductor, Majority and Minority carriers, Properties on PN Junction |
| Electronic components & materials: | Conductors, semiconductor & insulators, magnetic materials, jointing & cleaning materials for U/G copper cables & OFC; cells and batteries (chargeable and non-chargeable) relays, Switches, MCB & Connectors. |
| Electronic Devices and circuits | PN junction diodes (various diodes), Thyristor; Diode and triode circuits; junction transistors; Amplifiers; oscillator; multivibrator; counters; rectifiers; inverter and UPS, voltage regulator. |
| Digital Electronics | Number system & Binary codes; Boolean Algebra & Logic gates; Combinational & Sequential logic circuits, A/D & D/A converter, counters; memories |
| Linear Integrated circuit | Introduction to operational Amplifier; Linear applications; Non-Linear applications; Voltage regulators, Timers, Phase lock loop. |
| Microprocessor and Microcontroller | Introduction to microprocessor, 8085 microprocessor working, Assembly language programming; peripherals & other microprocessors; microcontrollers. |
| Electronic Measurements | Measuring systems; basic principles of measurement, range extension methods, cathode ray oscilloscope, LCD, LED panel; Transducers. Digital multimeter-At Freq.measurement-RF Freq. measurement signal generator |
| Communication Engineering | Introduction to communication, Modulation techniques, multiplexing techniques, wave propagation, transmission line characteristics, OFC, Fundamentals of Public Address system, Electronic exchange, Radar, Cellular and Satellite Communication. Electronic signal-Radio Broad |

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|--------------------------------|--|
| | casting Transmission-Reception-modulation, Demodulation-Carrier Wave sideband; Radio wave propagation of waves; Superhetrodyne receiver; Antennas-diff. type of antennas; Satellite communication |
| Data communication and network | Introduction to data communication, Hardware and interface, introduction to networks and networking devices, local area network and wide area network, internetworking. |
| Computer programming | Basic knowledge of computer hardware, Programming concepts, fundamentals of 'C' and C++; operators in 'C' and C++, Control statements, functions, Array string & Pointes, File structure, Data structure and DBMS. |
| Basic Electrical Engineering | DC Circuits, AC Fundamentals; Magnetic, Thermal and chemical effects of Electric current; Earthing – Installation, Maintenance, Testing |
| Equipments | Knowledge of Voltage stabilizers, Isolation transformers, AMF panel for generators, Different types of timers and switching circuits. |
| Solar power plant | Basic knowledge of solar power plants, different types of Solar panels, MPPT, Mini Charge Regulators, solar power conditioning units etc. |
| Basic knowledge of AtoNs | Basic knowledge of marine lanterns, Racons, DGPS, NAVTEX, AIS, GPS, VHF sets etc. |
| Antena | Basic knowledge of wave propogation, VSAT and microwave antenas, tranreceivers and various types of antenas. |
| Security system | Basic knowledge of digital security system. |

Syllabus for the post of Technician (Electrical)

Part A – General knowledge/Aptitude test (numerical aptitude/qualitative aptitude/qualitative aptitude/reasoning etc.)

Part B - Technical

Syllabus for technical subject

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|---------------------------------------|---|
| Basic concepts: | Concepts of resistance, inductance, capacitance, and various factors affecting them Concepts of current, voltage, power, energy and their units |
| Circuit law: | Ohms law, Simple Circuit solution and calculations using Ohms law. |
| Magnetic Circuit: | Concepts of flux, mmf, reluctance, Different kinds of magnetic materials, inductance, inductance calculation in series and parallel. |
| Electro statics | Concepts of electric flux, emf, capacitors, values of capacitors, measurement of capacitors, capacitor calculation in series and parallel. |
| AC Fundamentals | Instantaneous, peak, RMS and average values of alternating waves, Representation of sinusoidal wave form, simple series and parallel AC Circuits consisting of RL and C, Resonance, Tank Circuit Poly Phase system – star and delta connection, 3 phase power, DC and sinusoidal response of R-L and R-C circuit |
| Measurement and measuring instruments | Measurement of power (1 phase and 3 phase, both active and re-active) and energy, 2 wattmeter method of 3 phase power measurement, Measurement of frequency and phase angle Ammeter and voltmeter (both moving coil and moving iron type), extension of range wattmeter, Multimeters, Megger, Energy meter AC Bridges Use of CRO, Signal Generator, CT, PT and their uses Earth Fault detection |
| Electrical Machines : | (a) DC Machine – Construction, Basic Principles of DC motors and generators, their characteristics, speed control and starting of DC Motors Method of braking motor, 17 Losses and efficiency of DC Machines (b) 1 phase and 3 phase transformers – Construction, Principles of operation, equivalent circuit, voltage regulation, OC and SC Tests, Losses and efficiency Effect of voltage, frequency and wave form on losses Parallel operation of 1 phase /3 phase transformers Auto transformers (c) 3 phase induction motors, rotating magnetic field, principle of operation, equivalent circuit, torque-speed characteristics, starting and speed control of |

| | |
|---|--|
| | 3 phase induction motors Methods of braking, effect of voltage and frequency variation on torque speed characteristics Fractional Kilowatt Motors and Single Phase Induction Motors: Characteristics and applications |
| Synchronous Machines | Generation of 3-phase emf armature reaction, voltage regulation, basic knowledge of AC alternators, synchronizing, control of active and reactive power Starting and applications of synchronous motors |
| Generation, Transmission and Distribution | Different types of power stations, Load factor, diversity factor, demand factor, cost of generation, inter-connection of power stations Power factor improvement, various types of tariffs, types of faults, short circuit current for symmetrical faults Switchgears – rating of circuit breakers, Principles of arc extinction by oil and air, HRC Fuses, Protection against earth leakage / over current, etc Buchholtz relay, Merz-Price system of protection of generators & transformers, protection of feeders and bus bars Lightning arresters, various transmission and distribution system, comparison of conductor materials, efficiency of different system Cable – Different type of cables, cable rating and derating factor |
| Estimation and costing | Estimation of lighting scheme (domestic as well as industrial wiring), electric installation of machines and relevant IE rules Earthing practices and IE Rules, load calculation. |
| Utilization of Electrical Energy | Illumination, different type of light fittings, Electric heating, Electric welding, Electroplating, Electric drives and motors (three phase and single phase), Basic knowledge of lift and escalators. |
| Protective device | Basic knowledge of earthing, lightning conductor, surge protector and isolation transformer. |
| Alternator | Maintenance and varnishing of alternators |

Syllabus for the post of Technician (Diesel)

Part A – General knowledge/Aptitude test (numerical aptitude/qualitative aptitude/quatitative aptitude/reasoning etc.)

Part B - Technical

Syllabus for technical subject

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| Properties of metals | Introduction to basic metallic properties like elasticity, plasticity, ductility, brittleness, toughness, hardness, Ferrous Metals, Non Ferrous Metals/Alloys, Nonmetallic Materials |
| Refrigeration & Airconditioning System | Different types of refrigeration principles and refrigerants. Working of domestic refrigerator. Working of Window/Split type/tower type AC system. |
| IC Engine | Engine classification, Engine cycle, C.I. engine combustion, S.I. engine combustion, Engine structure, Fuel admission system, Air intake system, exhaust system, Engine cooling system, Lubrication system, Engine starting system, Working of two stroke and four stroke engines. |
| Fuel, combustion and lubrication | Diesel, Petrol and lubricating oils properties Introduction to common fuels - solid, liquid and gases and their composition. Combustion of fuels- their higher and lower calorific values. Combustion equations for carbon, sulphur, hydrogen and their simple compounds. Calculation of minimum amount of air required for complete combustion. Combustion analysis on mass basis and on volume basis. Heat carried away by flue gases. Analysis of flue gases by Orsat apparatus. Simple numerical problems Idea of specific properties of liquid fuels such as detonation, knock resistance (cetane and octane numbers), viscosity, solidification point, flash point and flame point. |
| Components and terms related to engine | Components of Diesel engines like cylinder block, cylinder head, piston, intake valve, piston rings, exhaust valve, piston pin, crank shaft, connecting rod, timing gears, camshaft, Description and function of fly wheel and vibration damper (AVM), Engine related terms like bore, stroke, TTC, BDC, Revolution, compression ratio, cycle etc. |
| WELDING: | Definition, Weldedge preparation, Introduction to various welding processes with procedure equipments and applications such as (i) Electric arc welding. (ii) Resistance welding-Spot welding, Flash |

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|------------------------|--|
| | butt, Percussion welding. (iii) Thermit welding. (iv) Carbon arc welding (v) Metal-Inert-Gas welding (MIG). (vi) Tungsten arc welding (TIG). |
| Brazing of metals: | Preparation for brazing and procedures for brazing. |
| Measuring instruments | System of measurement, description care and use of Measuring instruments like Vernier caliper, Micro meter/screw gauge, feeler gauge, injector calibrator, dial bore gauge, dial indicators etc. |
| Machine tools | drill, mill, grinding wheel, hacksaw blade, cutting tool etc. |
| Fire and fire fighting | Different types of Fire and fire fighting techniques |
| Fasteners | nut, bolt, screws etc |
| Pumps | Operation of monoblock, central fugal, immersion |
| Basic electrical | Basics of alternator and batteries |

Syllabus for the post of Technician (General)

Part A – General knowledge/Aptitude test (numerical aptitude/qualitative aptitude/qualitative aptitude/reasoning etc.)

Part B - Technical

Syllabus for technical subject

| | |
|--|--|
| Properties of metals | Introduction to basic metallic properties like elasticity, plasticity, ductility, brittleness, toughness, hardness, tenacity, fatigue, malleability, stiffness, elastic bodies, plastic bodies and rigid bodies, deformation, Ferrous Metals, Non Ferrous Metals/Alloys, Nonmetallic Materials, Basics of Stress and Strain. |
| Refrigeration & Airconditioning System | Different types of refrigeration principles and refrigerants. Working of domestic refrigerator. Working of Window/Split type/tower type AC system. |
| IC Engine | Engine classification, Engine cycle, C.I. engine combustion, S.I. engine combustion, Engine structure, Fuel admission system, Air intake system, exhaust system, Engine cooling system, Lubrication system, Engine starting system, Working of two stroke and four stroke engines. |
| Fuel, combustion and lubrication | Diesel, Petrol and lubricating oils properties Introduction to common fuels - solid, liquid and gases and their composition. Combustion of fuels-their higher and lower calorific values. |
| Components and terms related to engine | Components of Diesel engines like cylinder block, cylinder head, piston, intake valve, piston rings, exhaust valve, piston pin, crank shaft, connecting rod, timing gears, camshaft, Description and function of fly wheel and vibration damper (AVM), Engine related terms like bore, stroke, TTC, BDC, Revolution, compression ratio, cycle etc. |
| WELDING: | Definition, Weldedge preparation, Introduction to various welding processes with procedure equipments and applications such as (i) Electric arc welding. (ii) Resistance welding-Spot welding, Flash butt, Percussion welding. (iii) Thermit welding. (iv) Carbon arc welding (v) Metal-Inert-Gas welding (MIG). (vi) Tungsten arc welding (TIG). |
| Brazing of metals: | Preparation for brazing and procedures for brazing. |
| Measuring instruments | System of measurement, description care and use of Measuring instruments like Vernier caliper, Micro meter/screw gauge, feeler gauge, injector |

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| | caliberator, dial bore gauge, dial indicators etc. |
| Workshop technology | lathe machine, drilling machine, grinder, shaper, plainer, milling machine, hacksaw machine etc |
| Machine tools | drill, mill, grinding wheel, hacksaw blade, cutting tool etc. |
| Fire and fire fighting | Different types of Fire and fire fighting techniques |
| Fasteners | nut, bolt, screws etc |
| Pumps | Operation of monoblock, central fugal, immersion |
| Basic electrical | Basics of alternator and batteries |

Syllabus for the post of Radio Technician

Part A – General knowledge/Aptitude test (numerical aptitude/qualitative aptitude/quatitative aptitude/reasoning etc.)

Part B - Technical

Syllabus for technical subject

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| Electronic components & materials: | Conductors, semiconductor & insulators, magnetic materials, jointing & cleaning materials for U/G copper cables & OFC; cells and batteries (chargeable and non-chargeable) relays, Switches, MCB & Connectors. |
| Electronic Devices and circuits | PN junction diodes, Thyristor; Diode and triode circuits; junction transistors; Amplifiers; oscillator; multivibrator; counters; rectifiers; inverter and UPS. |
| Digital Electronics | Number system & Binary codes; Boolean Algebra & Logic gates; Combinational & Sequential logic circuits, A/D & D/A converter, counters; memories |
| Linear Integrated circuit | Introduction to operational Amplifier; Linear applications; Non-Linear applications; Voltage regulators, Timers, Phase lock loop. |
| Microprocessor and Microcontroller | Introduction to microprocessor, 8085 microprocessor working, Assembly language programming; peripherals & other microprocessors; microcontrollers. |
| Electronic Measurements | Measuring systems; basic principles of measurement, range extension methods, cathode ray oscilloscope, LCD, LED panel; Transducers. |
| Communication Engineering | Introduction to communication, analog and digital Modulation techniques, multiplexing techniques, OFC, Fundamentals of Public Address system, Electronic exchange, Cellular and Satellite Communication. Basic knowledge of Radio transreceiver, operation of VHF sets, tranreceivers. |
| Wave Propogation | Ground wave, sky wave, space wave, space diversity, skip distance, standing wave ratio, transmission line characteristics |
| Antena | Basic knowledge of antenna theory, knowledge of VSAT, microwave antenas, T antenna and various types of antenas. |
| RADAR | Function, block diagram, various modules inside the radar, radar antenas, radar ranges, and other terms related to navigational radars. |
| Data communication | Introduction to data communication, Hardware and interface, introduction to networks and networking |

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| and network | devices, local area network and wide area network, internetworking. |
| Computer programming | Programming concepts, fundamentals of 'C' and C++; operators in "C" and C++, Control statements, functions, Array string & Pointes, File structure, Data structure and DBMS. |
| Basic Electrical Engineering | DC Circuits, AC Fundamentals; Magnetic, Thermal and chemical effects of Electric current; Earthing – Installation, Maintenance, Testing |
| Equipments | Knowledge of Voltage stabilizers, Isolation transformers, AMF panel for generators, Different types of timers and switching circuits. |
| Solar power plant | Basic knowledge of solar power plants, different types of Solar panels, MPPT, Mini Charge Regulators, solar power conditioning units etc. |
| | Basic knowledge of GPS, marine lanterns, Racons, DGPS, NAVTEX, AIS, etc. |