SYLLABUS: BOILER ATTENDANT (BLR12025)

1. General Safety precautions in Boiler house, different equipment and instruments used for boiler. Fire extinguishers types and uses. First aid, PPEs and Response to emergencies etc.
2. Introduction, types, functions of Steel Rule, Calipers, Try square.
3. Introduction, types, functions of scribing Block / Marking Block, Files.
4. Introduction, types, functions of Hacksaw, Chisels, types, Drill bits.
5. Introduction, types, functions of Taps, Dyes and precision instruments like Vernier caliper, Micrometers etc.
6. Introduction, types, nomenclature of screw threads, Nuts & Bolts, spanners & studs.
7. Introduction, types, functions of fasteners, keys, keyways, sheet metal, cutting snips, stakes, Hand shearing maching etc.
8. Types, uses of Rivets, riveting, removing of broken tapes by various methods (stud extractors, Tap extractors).
9. Introduction, types, functions of gauges (ring gauges, snap gauges, plug gauge etc.).
10. Electricity- Ohm's law, series & parallel connections.
11. Pressure: Definition, Types, units. Bourdon tube, diaphragms, capsules, and bellows.
12. Temperature measurement: Definition, Units, modes of heat transfer, Temperature gauges, Temperature sensors, RTD, Thermocouple, Optical and radiation pyrometer working and application.
13. Basic properties of fluids, fluids in motion. Relation between flow rate and pressure, area, quantity.
14. Working and application of venturi and orifice flow meter
15. Gases - CO, CO2, O2., Cooling tower. Working, Application of I to P, and valve positioner, ON-OFF controller, P, PI, PD, PID control limitations and application.
16. Steam: Properties, Application in Modern Boilers. Use of steam table and entropy chart. boiling and condensation. Blower construction and operation.
17. Construction, working and uses of various types of valves, pumps.
18. Construction, working and uses of various types of heat exchangers, condenser & cooler.
19. Water treatment: Objective, Analysis. Impurities in water and their harmful effects.
20. Types of boilers-fire tube and water tube boilers. Forced circulation boilers. Preheater, Economizer, waste heat boiler. Knowledge of Indian Boilers Acts and Rules.

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SYLLABUS -SECURITY GUARDS (OSG12025)

Security Matter:

1. Bhartiya Dand Sanhita 2023,
2. Bhartiya Nyaya Sanhita 2023,
3. Knowledge of small arms,
4. Tactics,
5. Security Gadgets,
6. Type of armed forces and their duties,
7. Security surveillance equipment,
8. Lethal and non-lethal weapons, etc

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SYLLABUS: FIRE & SAFETY (JTF12025)

1. Discipline: Introduction, General principles of discipline, essentials for discipline and outward signs.

2. Basics of Physics & Chemistry related to Fire Physical properties of matter, Definition of Density, Relative density, Effects of density on behaviour of gases, Vapour Density, Melting & Boiling point, introduction to Heat and Combustion, Measurement of temp and conversion of their scales, definition of Flammable liquids, Gases & vapours, specific heat, latent heat.

3. Anatomy of Fire: Definition of Combustion, Elements of Combustion, Products of combustion. Fire triangle and fire tetra hadrons, Flash point, Fire point, Ignition Temperature, spontaneous combustion. Flammability Range. Transfer of heat. Measurement of heat and conversion of heat measuring units

4. Classification of Fires: Classification of fire and types of extinguisher, maintenance, method of operation. Techniques of fire extinction - Smothering, Cooling and Starvation. Care and maintenance of Fire Extinguishers. Introduction to Class K Fire

5. Hose and Hose Fittings: Type of suction & Delivery Hoses, Material used in Construction. Hose-reel, and causes of decay, operational use of Hose, Storage, Care & Maintenance, Repairing and Binding of Hose, Coupling and collecting head adapters, nozzles and other miscellaneous tools and equipment.

6. Source of water supply: Capacity and use, Open source - Pounds, Rivers, Streams, Sea, hydrant types &uses. Over Head Tanks Capacity and use.

Water Relay:- Types of relay-system, Advantages and disadvantages.

7. Ladders: Introduction of Types of ladders, Extension Ladder, Hook Ladder, Use, Care and maintenance of ladders. Pitching of Ladders parts and components.

8. Small & Special Rescue Gears: Different types of small gears, Fireman Axe, Ceiling Hook, Crowbar, Door Breaker, Padlock equipment and different type of Saw used during fire fighting& rescue techniques. Care, maintenance & testing of small gears Check Point Threat Extraction secured this document Get Original

9. Breathing Apparatus set: Introduction of BA Set, Types of BA Sets in use, Components and function/ working principles of normal compressed air BA set and its station maintenance.

10. Rope and Knots: Construction and fiber used for Ropes, types and use of Lines, causes of deterioration, inspection and test, methods of testing, care and maintenance, standard knots and their uses.

11. Personal Protective Equipment (PPE): Need for Personal Protective Equipment, Selection, Use, Care & Maintenance, Respiratory and Non-respiratory PPEs.

12. Pump and Primers: Classification of common pumps in use in Fire Service and its types , centrifugal pump, its parts, construction & their function, different types of primers, Reciprocating and Gas Ejector primers, Care and Maintenance, introduction to Cooling System & its importance.

13. Fixed Fire Fighting Installations:

A. Water Based- Riser mains- Wet Riser, Dry Riser, Hose reel installation, use and maintenance, introduction to hydrants, monitors,

B. Non-water based- Foam based, Foam pourer, DCP, CO_2, based installations use and maintenance.

14. Electricity & fire Hazards: General introduction, Fundamentals of electricity, Common Causes of electrical fires and its remedial measures, Electrical Hazards, protective measures and fire fighting procedure.

Foam & Foam making equipment; Water as an extinguishant- its merit-demerits and modification. Introduction to all types of foam concentration, properties of foams and techniques of extinguishment, types of foam, characteristics of good foam, foam making equipment-Mechanical High expansion, medium expansion and Low expansion foam, Storage of foam compound.

15. Fire Fighting Appliances: Special features of water tender and special types of fire tenders (Foam tender, DCP Tender, CO_2 tender, Multipurpose tender). Introduction of Portable fire pump, capacity, use and maintenance. Fire tenders, types use and maintenance. Foam Tender- General requirements, use, Operation, maintenance and test special Appliances. (RIV, Rescue van)

16. Practical Fireman ship: Duties & responsibilities of fire crew at a fire station & Fire Ground; Methods of entry, Rescue & fire fighting in smoke logged building. Salvage work- Direct/ indirect loss, Mitigation measures, Salvage seats and other special equipment.

Application of various types of fire fighting methods. (Defensive, Offensive).

17. Special Services Calls: Introduction, Methods employed by fire service to rescue trapped persons in lifts, sewer, trapped under vehicle, Debris of collapsed building and Wells, Rescue of human being animals from pounds & Rivers.

18. Medical First Aid: Definition of first-aid, Quality of First Aider, Shock-sign and symptoms, Asphyxia Sign and symptoms, Wound and Hemorrhage - Classification of injuries, signs, symptoms

and management of Burn, its severity, Scalds and frost bites, signs and symptoms of management of heart attack. Fractures - Causes, types, Signs and symptoms, management, sprain and dislocation - Sign & symptoms management
& observation of patient, Snake Bites- treatment & management, resuscitation - different methods.
19. Fire Service Organization: Introduction of Fire Service Organization, Writing and importance of occurrence book. Duty Card/ Register, fire reports, Log books, Hose Book, Stock Registers, Leave Register, Workshop order book, Defaulter Register etc. Station discipline and watch room Control room procedure. Executive duties of fireman. Familiarization and demonstration of smoke detectors, Heat Detectors Gas Detectors.
Hazardous Chemicals: Dangerous chemicals and substances, storage of hazardous chemicals and Fire Safety & fire fighting.
20. Rural Fires: Fire Hazards in grasslands, Forest areas, rural areas and hay stacks. Causes of fire Special appliances and equipment used. Methods of fire fighting in rural area.
21. Hydraulics: introduction & Units of measuring Length, Area and Volume of regular and irregular shaped Pressure & their conversion, Principal Characteristics of pressure and pressure head.

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SYLLABUS: SANITARY INSPECTOR (PHS12023)

1. Food (definition) & function of food & introduction of nutrition & nutrients.

2. Classification of food, their sources, nutrient diets proteins, fat, vitamins & minerals- sources, function, deficiency excess & daily requirement.

3. Balanced diet- definition & importance
   - Factors to be considered on planning meals.
   - Nutrient requirement of different age group
   - Diet survey

4. Family assessment – clinical examination of all members- height & weight BMI [Body mass index], Head circumference, -Blood test for Hb.

5. Nutrition education malnutrition- causes prevention, low birth weight (LBW), causes of LBW, prevention of LBW, special care to be given to malnourished children.

6. Therapeutic Diet: Introduction for balanced diet, weight reducing diet- low fat diet, bland diet, cirrhosis of liver, renal stone.

7. Food Preservation: definition & methods, household & industrial method of preservation, self-line, Pasteurization: methods, types &importance.

8. Refrigeration: Prevents spoilage.

9. WHO's definition for environmental sanitation. Safe and whole some water.
10. Sources of water. Various uses of water and its needs.

11. Water borne diseases. Conservation sources of water. Quality of water.
12. Physical, chemical and biological standard for portable water.

13. Purification of water:
i) Large Scale
ii) Small Scale

14. Prepare of a sanitary well and tube well.
15. Plumbing system and its maintenance.
16. Water supply and storage system at the community and domestic.
17. Pot method of chlorination. Swimming pool.
18. Water testing labs.

19. <u>Night soil disposal</u>

Sewage in liquid waste containing human excreta.

Numerous impact of night soil on the environmental factors.

Faucal borne disease due to unsanitary disposal of night soil.

20. Different types of latrines in use principal of construction of sanitary latrines and their uses.
    i) Bore hole
    ii) Dug well
    iii)RCA
    iv) Septic tank latrines.

21. <u>Solid waste disposal</u>

- Source, generation, storage, collection and disposal methods of solid waste.
- Classification of solid waste in community.
- Polluting effects of different types of solid waste.
- System of collection of solid waste from the houses & streets.

- Sanitary transportation of solid waste.
- Sanitary process of disposal of solid waste such as composting, sanitary land filling, incineration etc.

22. Air pollution

- Introduction of air pollution.
- Composition of air.
- Sources and nature of air pollution.
- Effect of air pollution on health.
- Prevention and controlling methods for air pollution.
- Explain global warming and its impact.
- Concept of temperature, humidity, radiation, thermal comfort, evaporation etc.
- Methods of air purification.
- Air disinfection.
- Definition of ventilation.
- Concept and importance of adequate ventilation.
- Types of ventilation

23. Noise pollution

- Introduction.
- Sources.
- Health Impacts.
- Preventive measures for controlling Noise pollution.

24. Liquid waste disposal

- Definition of liquid waste and its sources.
- Human waste management system.
- Various methods for liquid waste disposal.
- Pollution of water due to sewage.
- Health hazard associated with liquid waste.
- Sewers and its types.
- Methods of laying sewers.
- Construction and maintenance of sewers.
- Sewer appurtenances.
- Traps introductions.
- Types of traps.
- Definition of plumbing.
- Plumbing tools and operations.

25. Sewage disposal

- Definition and types of sewage system.
- Sewage farming and land treatment.
- Sewage disposal by biogas plant.
- Methods of disinfecting sewage.
- Sewage farming

26. Burial and Cremation

- Introduction
- Disposal of dead.
- Types of disposal methods.
- Methods of preservation of dead.
- Commonly and less commonly used methods for disposal of dead.
- Basic requirements for burial and cremation grounds.
- Health hazards associated with unsanitary disposal of dead bodies.

27. Soil sanitation

- Introduction and importance of soil.
- Classification of soil.
  Classification from the view point of importance in public health.
- Reason of excessive moisture in the soil.
- Reclamation of land.
- Soil health.

28. Housing

- General principle of healthy housing.
- Home sanitation.
- Utility services of house.
- Sanitary standards for construction of house.
- Food hygiene at home.
- Specification for healthy housing.

29. Sanitation in fairs and festivals

- Sanitation management at fairs and festivals.
- Sanitary problems associated with human gatherings and temporary settlements.
- Alternative emergency sanitary provisions to prevent sanitation crisis for food, housing, water supply, lighting.
  Disposal of community waste and prevention of outbreak of epidemics.

30. Occupational health

- Introduction
- Occupational environment measures.
- Occupational diseases.
- State the importance of safety and health at work place.
- State the role of employer, trade union and employees for health and safety program.
- Measures for health protection workers.
- Prevention of occupational diseases.
- Provision- benefit to employees.
- Occupational health in India.

31. Control of biological environment

- Introduction
- Study on insecticides, pesticides and disinfections.
- Sterilisation and disinfection of different articles.
- Various spraying equipment.
- Uses of rodenticides and larvaecidals.
- Principal of arthropod control.
- Definition of health
- Content of health education.
- Principal of health education.
- Health education opportunities for health inspector in his work place.
- Use of audio-visual aids and media.
- Health education approach.
- Planning health education activities, education in relation to environmental sanitation.
- Awareness on need of sanitation amenities.
- Health education material.
- Contribution of public health centres in health education.
- Utilising community resources for health education.
- Benefits of personal contract group meetings to provide health education.

32. Behavioral Science

- Definition of behavioural science.
- Importance of behavioural science.
- Impact of behaviour on personal hygiene.
- Basic hygiene practices.
- Habits and customs affecting personal hygiene.
- Caring sense organs.
- Oral hygiene.
- Factors influencing human behaviour, change of behavioural pattern in different age groups.
- Interpersonal relations and defence mechanism.

33. First-Aid

- Aim of first-aid.
- Principles and practice of first-aid.
- Contents of a basic first-aid box.
- CPR
- Types of dressing and bandages.
- Types of wounds.
- Miscellaneous conditions.
- Approach to a casualty.
- Psychological first-aid.
- Handling multiple casualties.
- Types of injuries like road accidents, factories accidents and disaster injuries.
- Transportation of victims and proper care provided.

34. Communicable diseases

- Definition and introduction on communicable disease.
- Air-borne and transmission of diseases through contact.
- Symptoms of diseases.
- Explain in detail various communicable diseases like Swine Flu, T.B., AIDS, Diphtheria, Polio, measles, diarrhoea etc.
- General measures for prevention and control of communicable diseases.

35. Non-communicable diseases

- Introduction of non- communicable disease.
- Explain in detail diseases like cancer, hypertension, cardiac disease, diabetes etc.
- In detail symptoms, prevention and control of non-communicable diseases.

36. Immunity and immunisation

- Importance of immunity and immunisation
- Types, purpose and effect of immunisation.
- National immunisation schedule.
- Measles, typhoid vaccines and pentavalent vaccine.

37. Disinfection and sterilisation

- Need of disinfection and sterilisation.
- Importance of disinfection and sterilisation in hospitals.
  Introduction and uses of various disinfection agents like Halogen, $KMnO_2$ solution, solid and liquid agents.
- Effective disinfectants like formaldehyde, sulphur, chlorine gases etc.
- Use of UV radiation and ozone as disinfectant.

38. Personal hygiene

- Need and importance of personal hygiene in daily life.

- Factors influencing health and hygiene habits.
- Maintaining basic hygiene habits of skin, hair, oral, nails etc.
- Developing dental care, care of hands, washing etc.
- Importance of regular
- Exercise and nutritious food.

39. Demography and health survey

- Definition and introduction of demography.
- Factors of demography.
- Various stage of demo.
    1. High stationary
    2. Early expending
    3. Late expending
    4. Low stationary
- Health survey includes birth rate, death rate, morbidity, IMR, MMR etc.
- Population control measures.

40. Public Health Act

- Definition, introduction and importance of acts.
- Indian Epidemic Disease Act.
- Explain endemic, pandemic with examples.
- Define epidemiology.
- Air and Water Pollution Control Act.
- Prevention of Food Adulteration Act.
- Birth and Death Registration Act.
- M.T.P. Act.
- Suppression of Immoral Traffic Act (SITA).
- Municipal and Local Body Acts related to Housing Sanitation Act.
- Factory Act and ESI Acts.

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SYLLABUS: BOILER ATTENDANT (1st Class) (TBR12025)

1. General Safety precautions in Boiler house, different equipment and instruments used for boiler. Fire extinguishers types and uses. First aid, PPEs and Response to emergencies etc.
2. Introduction, types, functions of scribing Block / Marking Block, Files.
3. The significance of principal appliance in use for the prevention of smoke and principle on which they work, Principle mechanical strokes, pulverizers, gas, oil and pulverizer fuel systems in use.
4. Introduction, types, nomenclature of screw threads, Nuts & Bolts, spanners & studs.
5. The working and management of steam boilers, super heaters and economizer.
6. Introduction, types, functions of fasteners, keys, keyways, sheet metal, cutting snips, stakes, Hand shearing maching etc.
7. Types, uses of Rivets, riveting, removing of broken tapes by various methods (stud extractors, Tap extractors).
8. Introduction, types, functions of gauges (ring gauges, snap gauges, plug gauge etc.).
9. Electricity- Ohm's law, series & parallel connections.
10. Pressure: Definition, Types, units. Bourdon tube, diaphragms, capsules, and bellows.
11. Temperature measurement: Definition, Units, modes of heat transfer, Temperature gauges, Temperature sensors, RTD, Thermocouple, Optical and radiation pyrometer working and application.
12. Basic properties of fluids, fluids in motion. Relation between flow rate and pressure, area, quantity.
13. Need for periodical cleaning, methods used for prevention of scales or other deposits of heating surfaces and the necessity for maintaining a certain PH in feed water.
14. Working and application of venturi and orifice flow meter
15. Gases - CO, CO2, O2., Cooling tower. Working, Application of I to P, and valve positioner, ON-OFF controller, P, PI, PD, PID control limitations and application.
16. Steam: Properties, Application in Modern Boilers. Use of steam table and entropy chart. boiling and condensation. Blower construction and operation.
17. Construction, working and uses of various types of valves, pumps.
18. Construction, working and uses of various types of heat exchangers, condenser & cooler.
19. Water treatment: Objective, Analysis. Impurities in water and their harmful effects.
20. Types of boilers-fire tube and water tube boilers. Forced circulation boilers. Preheater, Economizer, waste heat boiler. Knowledge of Indian Boilers Acts and Rules.

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SYLLABUS-NURSING TUTOR (NTR12025)

1. **Applied Anatomy:** The Circulatory and Lymphatic system: Structure of blood components, blood vessels – Arterial and Venous system. The Nervous system: CNS, ANS and PNS (Central, autonomic and peripheral). The Musculoskeletal system: Bones – types, structure, growth and ossification, Joints – classification, major joints and structure, Types and structure of muscles.
2. **Applied Physiology:** Respiratory system: Functions of respiratory organs, Endocrine system: Functions and hormones of Pineal Gland, Pituitary gland, Thyroid, Parathyroid, Thymus, Pancreas and Adrenal glands. The Reproductive system: Female reproductive system – Menstrual cycle, function and hormones of ovary, oogenesis, fertilization, implantation, Functions of breast, Male reproductive system – Spermatogenesis, hormones and its functions, semen.
3. **Nursing Foundation:** Definition and Administration of Medication, Drug Nomenclature, Effects of Drugs, Pharmacodynamics and Pharmacokinetics, Medication dose calculation**,** First Aid Management of Wounds, Haemorrhage & Shock, Musculoskeletal Injuries – Fractures, Dislocation, Muscle injuries. Transportation of Injured persons, Respiratory Emergencies & Basic CPR.
4. **Applied Biochemistry:** Digestion, absorption and metabolism of carbohydrates, Lipids, proteins and related disorders, regulation of blood glucose, Isoenzymes – Definition & properties, Enzymes of diagnostic importance in, Liver Diseases – ALT, AST, ALP, GGT, Acid -base maintenance: pH – definition, normal value, Regulation of blood pH.
5. **Nutrition:** Protein energy malnutrition – magnitude of the problem, causes, classification, signs & symptoms, Severe acute malnutrition (SAM), management & prevention and nurses 'role, Vitamin deficiency disorders – vitamin A, B, C & D deficiency disorders –causes, signs & symptoms, management &prevention and nurses' role, Therapeutic diets: Definition, Objectives, Principles. Balanced diet across life cycle: Definition, principles, steps, Food guides – Basic Four Food Groups.
6. **Applied Microbiology:** Pathogenic organisms: Micro-organisms: Cocci – gram positive and gram negative; Bacilli –gram positive and gram negative, Viruses, Fungi: Superficial and Deep mycoses, Parasites. Immunity, Immunity: Types, classification, Antigen and antibody reaction
7. **Medical Surgical Nursing:** Nursing management of patients (adults including elderly) with respiratory problems, with blood and cardiovascular problems, with disorders of endocrine system**.**
8. **Pharmacology:** Basic and applied pharmacology of commonly used, analgesics and anesthetics, hyponotics and sedatives, composition action dosage route indications contraindication drug interactions, side effects, adverse effects, toxicity and role of nurse**.** Drugs acting on g.i. System: antiemetics, emitics, purgatives, antacides, cholinergics, anticholinergics, fluid and electrolyte therapy.
9. **Pathology and Genetics:** Various blood and bone marrow tests in assessment and monitoring of disease conditions: Hemoglobin, Rbc, wbc & platelet counts. Methods of collection of blood specimen for various clinical pathology, biochemistry, microbiology tests, inference and normal values. Examination of body cavity fluids, transudates and exudates, laboratories tests used in CSF analysis.
10. **Child Health Nursing**: Appraisal of New-born, Nursing care of a normal new-born /essential new-born care, Neonatal resuscitation. Identification and Nursing management of congenital malformations, Congenital disorders of different body systems, Childhood emergencies: Accidents – causes and prevention, Poisoning, Foreign bodies, Haemorrhage, Burns and Drowning, PLS (AHA Guidelines).
11. **Midwifery and Gynaecological Nursing:** Oogenesis, spermatogenesis, fertilization and implantation, Embryology and Fetal development, Placenta and membranes, Structure, Functions, Abnormalities, Liquor amni, Umbilical cord, Fetal skull, Structure, Diameters, Fontanels and sutures, Fetal circulation. Diagnosis of pregnancy, Antenatal care, Calculation of expected date ofdelivery, Causes and signs of onset of labour, setting up of the labour room including new-born corner. Management of complications during pregnancy: Bleeding in pregnancy, Abortion, Gestational diabetes mellitus, Pre-eclampsia, Eclampsia, Monitoring of High risk pregnancy, Multiple pregnancy. Gynaecological disorders: Retroversion, retro flexion, Fistulas, Uterine displacement & prolapsemalformations, Cysts and fibroids.
12. **Community Health Nursing:** Epidemiology and nursing management of common communicable diseases like respiratory infections, Small pox, Chickenpox , Measles, Influenza, Rubella, Ari's& pneumonia, Intestinal infections: Poliomyelitis, Viral hepatitis, Cholera, Diarrhoeal diseases, Typhoid fever, Food poisoning, Dengue, Malaria, Filariasis, Zoonoses, Viral, Rabies, Yellow fever, Japanese encephalitis, Surface infection, Trachoma, Leprosy, STD

and RTI, Yaws, HIV/AIDS. Demography: Definition, concept and scope. Epidemiology: Definition, concept, aims, scope, uses and terminology used in epidemiology. National Health program like: National ARI program, Revised national tuberculosis control program (RNTCP), National anti-malaria program, National AIDS control program. Health Agencies: WHO, UNFPA, UNDP, Indian Red Cross, Indian Council for child welfare, Family Planning association of India. Delivery of community health services: Planning, budgeting and material management of SCS, PHC and CHC.

13. **Communication & Education Technology:** Principles and maxims of teaching, Formulating objective; general and specific, Lesson planning, Classroom management. Methods of teaching: Lecture, demonstration, group discussion, role play, Clinical teaching method, nursing round & reports, Criteria for selection of assessment techniques and methods.
14. **Mental Health Nursing:** Etiological theories (genetics, biochemical, psychological etc), Classification of mental disorders, Psychopharmacology – Definition, classification of drugs, Psychosocial therapies – individual therapies, group therapy, behavior therapy. Types of Psychiatric emergencies: Over Active, under active patient, Violent behaviour, Suicide, adverse drug reactions, withdrawal symptoms, Acute psychosis etc.
15. **Management of Nursing Service and Education**: Establishment of nursing Educational institution – INC Norms and guidelines, Planning: Importance, Types of planning, Principles of organization, Organization chart of hospital/ward/PHC/ Sub center, Staffing, Job description, Job specification, Staff development and staff, welfare, Directing, Co-ordination and control, Quality management, Budgeting.
16. **Management of Nursing Service and Education**: Organizational behaviour and Human relations, Communication, Interpersonal relationships, human relations, Leadership styles, Collective bargaining.
17. **Applied Sociology & Psychology:** Clinical sociology: Introduction to clinical sociology**,** Sociological strategies for developing services. Body mind relationship, Genetics and behaviour, Cognitive process: Attention, Perception, Intelligence, Learning – definition, types, determinants.

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SYLLABUS: HINDI TRANSLATOR (SAH12025)

- **सामान्य हिन्दी:**
  1. हिन्दी सामान्य परिचय एवं प्रमुख बोलियां,
  2. हिन्दी वर्णमाला एवं विराम चिह्न,
  3. शब्द रचना (उपसर्ग, प्रत्यय)
  4. संज्ञा (लिंग,वचन,कारक),सर्वनाम, विशेषण, क्रिया, काल,अव्यय,
  5. वाक्य रचना(वाक्य, उपवाक्य, पदबंध),
  6. संधि, संधि विच्छेद,
  7. मुवाहरें एवं लोकोक्तियाँ,
  8. तत्सम, तद्भव, समानार्थी शब्द, पर्यायवाची शब्द, विलोम शब्द,
  9. सामान्य हिन्दी वाक्याशों का अंग्रेजी में अनुवाद,
  10. हिन्दी साहित्य एवं पुरस्कार

- **General English:**
  11. Grammar,
  12. Comprehension,
  13. Sentence Completion and Structure, Sentence Rearrangement,
  14. Vocabulary,
  15. Articles,
  16. Tenses,
  17. Unseen Passages,
  18. Synonyms,
  19. Fill in the Blanks,
  20. Idioms & Phrases,
  21. Verb,
  22. Cloze Test,
  23. Error Correction,
  24. Antonyms,
  25. Suffix, Prefix,
  26. Pronouns, Prepositions, Conjunctions, Adjectives, Adverbs,
  27. Question tag,
  28. Active & Passive Voice,
  29. Translation into Hindi.

- **Computer Aptitude**:
  30. Computer Abbreviation,
  31. Computer Hardware,
  32. Computer Software,
  33. Operating System,
  34. Networking,
  35. Keyboard Shortcuts,
  36. Internet,
  37. Memory,
  38. MS Office – MS Excel, MS Word, MS Power Point.

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SYLLABUS-DIPLOMA IN CHEMICAL ENGINEERING (CHE12025)

1. Importance of safety and precautions, housekeeping & good shop floor practices. PPEs, First Aid. Response to emergencies e.g. power failure, fire, and system failure. Occupational Safety & Health.
2. Computer Architecture, Number System and codes, Introduction to Operating System, Computer Network and the Internet, Introduction to C programming.
3. Nature and scope of environmental problems, definition, Elements of Ecology, Environmental Pollution, Environmental Sanitation, Resource Conservation
4. Electrical & Electronics Engineering: DC network, Generator & motor, AC fundamental, AC circuit, Transformer, Semiconductor, Transistor, House Wiring, Microprocessor.
5. Element of Mechanical Engineering: Introduction, Properties and laws of gases, Properties of steam, Generation of steam, Steam engine, Internal combustion engine, Steam Turbines, Gas Turbines, Transmission of motion and power:
6. Principles of unit operation-I: Flow of fluid, Transportation of fluid, Fluid flow measuring instruments, Heat Transfer.
7. Applied Chemistry: Thermodynamics, Chemical Kinetics, Ionic Equilibrium, Colloidal Chemistry, Organic Chemistry.
8. Industrial Chemical Process-I: Definition of Unit Process and Unit Operation with examples of each, Water (Industrial & Municipal) Supply, Acid Industry, Alkali – Industry.
9. Fuels, Furnace and Refractories: Fuels, Solid Fuel, Liquid fuel, Gaseous Fuel, Renewable Energy, Furnace, Refractories.
10. Stoichiometry, Thermodynamics & Kinetics.
11. Principles of unit operation -II: Distillation, Absorption, Leaching and Extraction, Drying.
12. Instrumentation: Basic principles of Measurement, Sensing Elements, Transducers, Indicating and Recording means, Temperature Measurement, Pressure Measurement, Liquid level measurement, Flow Measurement, Special methods of Measurement.
13. Industrial Chemical Process-II: Soap and detergent, Plastics, Hydrogenation of Fats and Oils, Adhesive, Cement.
14. Petrochemicals: Types, Process of manufacturing of Petrochemicals, Synthetic detergents, Insecticides, Manufacture of Petrochemicals, Monomers, Plastics and Resins, Rubber, Varnish, Fibres.
15. Principles of unit operation -III: Evaporation, Crystallization, Filtration, Adsorption, Sedimentation and Settling.
16. Fertilizer Technology: Introduction, Production of Ammonia, Sulphuric Acid, Urea, Ammonium Sulphate, Nitric Acid, Ammonium Nitrate.
17. Petroleum Technology: Nature of Petroleum, Concepts of Petroleum geology and basic rock properties, Petroleum Exploration Methods, Drilling Methods. Well Logging, Oil well cementing and casing practices, Well Completion, Reservoir Studies.
18. Automatic Process Control: Science of Automatic Control, Controlling Elements, Transmission System, Final Control Elements, Application of Control Engineering, Distributed Digital Control System:
19. Industrial Chemical Process III: Pulp & paper, Fertilizer, Lime, Cement, Sugar, Leather, Glass, Adhesive.
20. Principle Of Unit Operation – (IV): Size reduction, Mechanical Separation, Mixing, Conveying.

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SYLLABUS-DIPLOMA IN CIVIL ENGINEERING (CIV12025)

1. Importance of safety and precautions, housekeeping & good shop floor practices. PPEs, First Aid. Response to emergencies e.g. power failure, fire, and system failure. Occupational Safety & Health.
2. Computer Architecture, Number System and codes, Introduction to Operating System, Computer Network and the Internet, Introduction to C programming.
3. Electrical & Electronics Engineering: DC network, Generator & motor, AC fundamental, AC circuit, Transformer, Semiconductor, Transistor, House Wiring, Microprocessor.
4. Building Materials and Construction: Stone& Bricks, Sand & Mortar, Timber & Miscellaneous materials, Painting & Varnishing, Foundation, Masonry, Doors & Windows, Damp proofing and floors, Plastering & pointing.
5. Water Resource Engineering: Introduction, Water requirements of crops, Definition of common terms, Hydrological cycles, Watershed management, Head works & Weir section, Gravity dam, Canals, Cross drainage works, Water logging.
6. Civil Engineering Drawing: Doors and Windows, Roof Truss, Planning of Building, Stair-Case, Building Drawing, Perspective View drawing.
7. Surveying: Introduction and overview, Measurement of distances, Chain survey, Compass survey, Levelling, Plane table survey.
8. Structural Mechanics: Simple stresses and strains, Shear force, bending moments, Stresses in beams, Slopes and deflection of beams, Column, struts, Analysis of truss, Dams and retaining walls.
9. Hydraulics: Measurement of Pressure, Flow of fluids, Flow through Open Channel, Pumps.
10. Estimating-I: Types of estimates, Method of building estimate, Different items of work, Sanitary and plumbing, Estimate of RCC items of works.
11. Computer Aided Drafting & Drawing: Basic command to get started, Setting up a drawing, Developing drawing strategies, Using layers, Using Blocks and W blocking, Generating elevation, Working with hatches and fills, Controlling drawing texts, Dimensioning, External references, Getting families with proper shape, Printing an auto CAD drawing.
12. Concrete Technology: Cement, Properties of concrete, Concrete mix design, Quality control of concrete, Extreme weather concreting & chemical Admixture in concrete, Properties of special concrete.
13. Advanced Surveying: Contouring, Theodolite surveying, Curves, Tacheometry survey, Modern method of surveying.
14. Transportation Engineering: Introduction, Investigation for road project, Geometric Design of Highway, Construction of Road Pavements and Materials, Traffic Engineering**,** Hill Roads, Drainage of roads, Maintenance and repair of roads, Introduction to Airport Engineering.
15. Design of RCC Structures: Properties of Concrete and steel, Fundamentals of Limit State Method, General design considerations (IS:456-2000), Reinforced Concrete beams, Limit state of collapse –Shear and Bond, Reinforced Concrete Slabs (only simply supported), Reinforced Concrete Column (only short and axially loaded column), Design of footings, Basic concept of Pre stressed concrete.
16. Geo-Technical & Foundation Engineering: Properties, Permeability, Seepage analysis, Shear strength, Bearing Capacity, Compaction, Stabilization, Site investigation, Sub Soil Exploration, Foundation Engineering.
17. Advanced Building Construction & Earthquake resistant Technology: Excavation, Pile foundation, Building Planning & Orientation, Fire Protection & Building Acoustics, Earthquake, RCC building- Seismic Performance, Ductile detailing, Strengthening and retrofitting of existing structure.
18. Estimating II: Earthwork, Roadwork, Rate analysis, Specification, Departmental works.
19. Environmental Engineering & Pollution Control: Water Supply, Domestic Sewage, Industrial Waste, Environmental Pollution, Solid Wastes from Society, Environmental Sanitation
20. Design of Steel Structures: Introduction to steel structure, Design considerations (IS:800-2007), Riveted Connections, Bolted Connections, Simple beam connections, Welded connections, Design of - tension members, compression members, beams, column bases.

SYLLABUS: DIPLOMA IN COMPUTER ENGINEERING (COM12025)

1. Importance of safety and precautions, housekeeping & good shop floor practices. PPEs, First Aid. Response to emergencies e.g. power failure, fire, and system failure. Occupational Safety & Health.
2. Computer Application & Programming: Computer Architecture, Number System and Codes, Introduction to Operating Systems, Computer Network and Internet, Introduction to C Programming.
3. Computer Architecture and Organisation: Introduction to Computer Architecture, Number Representation, Basic Computer Organisation and Design, Central Processing Unit, Memory Organisation, Input-Output Organisation.
4. Elements of Multimedia: Overview, Sound & Audio, Image and Graphics, Motion Video Technology.
5. Elements of Electrical Engineering: Introduction, Work, Power, Energy and DC Circuit, D.C generator, D.C motor, A.C fundamental, A.C Series circuit, Phasor algebra, Transformer and Induction motor.
6. Mathematics: Partial Differentiation, Differential Equation, Diff. Equation of first ord. first degree, Diff. Equation of first ord. higher degree, Diff. Equation of second order, Measures of Central Tendency and Dispersion, Correlation and Probability.
7. Advanced C and C++: Overview of C, Array, Functions, Pointers and File, Introduction to C++, Classes and Objects, Function and Operator Overloading, Inheritance, Template and Exception handling, File handling.
8. Computer Hardware and Networking: Computer System Layout, Installation and configuration of Secondary memory and BIOS, Installation of different devices, Trouble shooting basics , OS installation, Basics of Networking, AN Configuration, Security fundamentals, Implementation of networking basics.
9. Data Structure: Data Structure Introduction and Overview, Preliminaries, String Processing, Arrays, Records and Pointers, Linked Lists , Stacks, Queues, Recursion, Trees, Graphs and Their Application, Sorting and searching, Introduction to File Organization.
10. Digital Electronics: Boolean Algebra and Logic Gates, Combinational Digital System, Flip Flops, Registers & Counters, Memory Devices, Display Device.
11. Microprocessor and Interfacing: Internal architecture of a microprocessor (using block diagram), Addressing modes and Instruction execution, Interfacing of Memory and I/O devices, Assembly language Programming, Peripheral chips and their interfacing, PC interfacing and Intel 386 and 486 processors.
12. System Programming: Assembly Language, Macros, Assemblers, Macro Assembler, Loaders, Compiler Construction.
13. Computer Communication & Networking: The Physical Layer, The Medium Access Sub layer, The Data Link Layer, The Network Layer, The Transport Layer, The Session Layer, The Presentation Layer, The Application Layer, Concepts of internet and www, HTML, TCP/IP.
14. Database Management System : Concept, Application, E-R diagram, SQL, Functional Dependencies and Normalization for Relational Database, Transaction processing concepts, Concurrency Control Techniques, Security and Integrity, Distributed databases.
15. Internet & Web Technology: Internet Fundamentals, TCP/ IP, Internet Application and Services, E-Commerce, Web Publishing and Browsing, Interactivity Tools.
16. JAVA Programming: Object oriented methodology, Java, Implementation of java features, Package, Java I/O, Exception Handling, Multi Threaded Programming, Network Programming, GUI Programming, Database connectivity with JDBC
17. Operating System: Introduction, Processes, Process Scheduling Algorithm , Memory Management , File System , Input/output , Device Management , Deadlocks, Distributed OS.
18. Mobile Computing: Introduction, Architecture and Design of Mobile Computing, Mobile Communication, Introduction to Android, Android Activities and GUI Design Concept.
19. Cryptography and Network Security: Introduction, Cryptography: Concept and Techniques, Symmetric Key Algorithm, Asymmetric Key Algorithm, Authentication, Firewall.
20. Software Engineering: Introduction, Software requirement analysis, Design, Quality Assurance, Verification and Validation, Evaluation and Documentation, Project Management.

SYLLABUS: DIPLOMA IN INSTRUMENTATION/ELECTRONICS &INSTRUMENTATION/ ELECTRONICS & TELECOMMUNICATION (COMBINED) (INS12025)

1. Elements Of Electrical Engineering: Conductor, Insulator, Current, Voltage, Resistance, Work, Power, Energy, Resistance and resistivity, Conductance and conductivity, Ohm's law, Kirchhoff's point law, Voltage law, Faraday's laws of electromagnetic induction, Fleming's right hand and left hand rule, D. C. Generator, D. C. motor, EMF equation, Lenz's law, A. C. through pure resistance, pure inductance and pure capacitance, A. C. through R—L, R—C and R—L – C series circuit, Phasor, Ideal transformer, Auto transformer, 3 phase induction motor. Importance of safety and precautions, housekeeping & good shop floor practices. PPEs, First Aid. Response to emergencies e.g. power failure, fire, and system failure. Occupational Safety & Health
2. Analog Electronics-I: Semiconductor devices, Rectifier & Power Supply, Bipolar Junction Transistor, Transistor biasing, 0JFET, MOSFET AND UJT, Signal Stage Transistor Amplifiers, Multistage Amplifier, Class B Push Pull Amplifier, Noise in amplifier circuits.
3. Digital Electronics: Logic levels, Logic Gates, Boolean Algebra, Combinational Logic Systems, Flip flops, Registers & Counters, Memory Devices, Converters.
4. Electrical Measurement and Measuring Instruments-I: Unit, Dimension & Standards, Measurement and instrumentation system, Electromechanical instruments, Measurement of resistance, Potentiometer, AC Bridge, Measurement of current and voltage.
5. Electrical Circuits &Networks: D. C Network Theorem (With dependent Source), D. C Network Theorem (With independent Source), A. C Network Theorem, Single phase AC parallel circuit, Three phase circuit, Transients.
6. Analog Electronics-II: Tuned Amplifier, Feedback Amplifies, Operational Amplifier, Oscillators, Relaxation Oscillator, Sweep Circuits, Microelectronics.
7. Instrumentation System-I: Measurements, Performance characteristics of measuring instruments, Signals & response of measuring systems, Sensors and transducers, Pneumatic transducer, Signal Conversion.
8. Process Control-I: Introduction to Control systems: Laplace transformation, Dynamic system representation, Transfer function of physical system, Block diagram reduction, Control system analysis, Controller modes, Stability Analysis.
9. Microprocessor: Introduction, 8-bit Microprocessor Architecture, Instructions and Programming, 16 bit Microprocessor 8086, Interfacing Peripherals.
10. Electrical Measurements and Measuring Instruments-II Measurement of power, Measurement of energy, Instruments for special purpose, Electronics Instrument, Primary sensing element and transducer, Data transmission and telemetry, Microprocessor based Instrumentation system.
11. Instrumentation System-II: Temperature measurements, Pressure measurements, Level measurements, Flow measurements, Telemetering.
12. Process Control-II: Process dynamics and mathematical modelling, Control elements, Controllers, Special Control Schemes, Stability analysis, Process Instrumentation.
13. Automatic Control System: Introduction, Block diagram and signal flow graph, Time domain analysis, Frequency domain analysis, State space model.
14. Industrial Electronics: Power devices, Thyristors, Rectifiers, Inverters, Choppers, Cycloconverters, Power supply, Motor speed control, uninterruptible power supply.
15. Data Communication & Networking: Introduction to Data Communication, Serial Data Communication, Computer Networks, Local Area Networks, Internetworking, ISDN and ATM.

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SYLLABUS: DIPLOMA IN MECHANICAL ENGINEERING (MEC12025)

1. Importance of safety and precautions, housekeeping & good shop floor practices. PPEs, First Aid. Response to emergencies e.g. power failure, fire, and system failure. Occupational Safety & Health.
2. Computer Architecture, Number System and codes, Introduction to Operating System, Computer Network and the Internet, Introduction to C programming.
3. Nature and scope of environmental problems, definition, Elements of Ecology, Environmental Pollution, Environmental Sanitation, Resource Conservation
4. Fluid Mechanics & Fluid Machines: Physical Properties of Fluids, Fluid Statics, Fluid Kinematics, Fluid Measurements, Pipe & Open Channel Flow, Fluid Machines, Hydraulic Turbines, Pumps.
5. Electrical & Electronics Engineering: DC network, Generator & motor, AC fundamental, AC circuit, Transformer, Semiconductor, Transistor, House Wiring, Microprocessor.
6. Manufacturing Technology – I: Basic of Machine Tools, Metal Casting Process, Welding Processes, Press Work, Powder Metallurgy, Cutting Fluids and Coolants.
7. Thermodynamics: Fundamentals and laws of Thermodynamics, Laws of perfect gases, Thermodynamic processes on gases, Fuels and Combustion, Air standard cycles, Properties of steam, Vapour Power cycle, Heat Transfer.
8. Engineering Materials: Mechanical Properties of Materials, Structure of Solids, Ferrous Metals and its Alloys, Non- Ferrous Metals and Its Alloys, Plastic, Testing of Materials, Heat Treatment, Corrosion & Surface Engineering.
9. Manufacturing Technology-II: Lathe, Drilling machine, Shaper, Planer & Slotter, Grinding & Surface finishing, Milling machine, Non-Traditional machining methods, Jigs and Fixtures.
10. Theory of Machines: Definition of Theory of Machine (TOM), Basic kinematics of Machines, Friction, Transmission of Power, Cams, Balancing, Mechanical Vibrations, Governors.
11. Strength of Materials: Simple Stresses and strains, Shear force and bending moments, Theory of simple bending and Deflection of beam, Stresses in beams, Torsion in circular shafts and springs, Columns and Struts, Rivets and riveted joints.
12. Machine Drawing: Cutting geometric Solids with planes, Keys, Cotters Joints and Pin Joints, Pipes Drawings, Welded Joints, Shaft Coupling, Shaft Bearing and Brackets, Pulleys, Valves, Engine Parts, AutoCAD.
13. Thermal Engineering-I: Steam generators, Steam nozzles, Steam turbine, Steam condensers and Cooling towers, Nuclear power plant, Heat transfer:
14. Industrial Engineering: Work study, Job Evaluation & Merit Rating, Wage Systems, Inspection and Statistical quality control, Network Analysis.
15. Plant Maintenance Engineering: Introduction of maintenance engineering, Power Plant maintenance, Preventive maintenance, Electrical maintenance.
16. Advance Workshop Practice& CNC Machine: Introduction of the Shop Floor: Safety and security measures inside the Tool Room, Fundamentals of Cam, Manual Part Programming
17. Non-Conventional Energy: Introduction to Non-Conventional Energy Sources, Solar Energy Engineering, Wind Energy Engineering, Ocean Energy Engineering, Geothermal Energy Engineering, Bio Energy Engineering, Direct Energy Conversion Systems, Chemical Energy Sources
18. Thermal Engineering-II: Internal Combustion Engine, Air compressors, Gas turbine and propulsion, Refrigeration Cycle
19. Drawing, Estimating & Costing: Jigs and Fixtures, Introduction to Estimation and costing, Elements of costs, Indirect expenses and depreciation, Mensuration and Estimation of material cost, Estimation of Machining Time, Estimation of Welding & Fabrication Time Sheet metal
20. Metrology: Metrology concepts and standards, Basic Precise and Non Precise Measuring instruments, Limits, Fits, Tolerances and Gauges, Angular Measurements, Comparators, Screw Thread Measurement, Gear Measurement, Surface Finish Measurement, Machine tool metrology.

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SYLLABUS-DIPLOMA IN ELECTRICAL ENGINEERING (ELE12025)

1. Importance of safety and precautions, housekeeping & good shop floor practices. PPEs, First Aid. Response to emergencies e.g. power failure, fire, and system failure. Occupational Safety & Health.
2. Computer Architecture, Number System and codes, Introduction to Operating System, Computer Network and the Internet, Introduction to C programming.
3. Elements of Mechanical Engineering: Properties and Laws of Gases, Properties of Steam, Generation of Steam, Steam Engine, Internal Combustion Engine, Steam Turbines, Gas Turbines, Transmission of Motion and Power.
4. Principle of Electrical Engineering: Fundamental Concept, Magnetism and Electromagnetism, Electromagnetic Induction, Energy Conversion Principle, Electrostatic, AC Fundamentals, Phasor Algebra, AC Series Circuit.
5. Elements of Electronic and Devices: Semiconductor, Electronic devices: Transistor, Transistor amplifier, Feedback circuit and oscillator, Special semiconducting devices, Integrated circuits.
6. Electric Circuit with Network: D. C Network Theorem (With independent Source), D. C Network Theorem (With dependent Source), A. C Network Theorem, Single phase AC parallel circuit, Three phase circuit, Transients, Application of Mat lab:
7. Electrical measurement and Measuring Instruments-I: Unit, dimensions and Standards, Measurement and instrumentation system, Electromechanical instruments, Measurement of resistance, Potentiometer, A.C. Bridge, Measurement of current and voltage:
8. Electrical Machines-I: D.C. Generator, D.C. Motor, Single Phase Transformer, Three Phase Transformer, Special D.C. machine, Special Transformer,
9. Electrical Engineering Materials: Conducting Materials, Semiconducting Material, Insulating Materials, Dielectric Material, Magnetic Material, Electric Hardware, Constructional Materials.
10. Electrical & Electronics Drawing and Design: Symbols and Notation, Electrical Machine Drawing, Winding, Electrical Wiring, Sub-Station, Electronic Drafting, Transformer Design.
11. Digital Electronics: Number System, Logic gates, Boolean Algebra, Combinational logic, Flip-Flops, Register and Counters, Data Converter &Memory Devices, Display.
12. Electrical Measurement and Measuring Instruments-II: Measurement of power, Measurement of energy, Instruments for special purpose, Electronics Instrument, Primary sensing element and transducer, Data transmission and telemetry Microprocessor based Instrumentation system.
13. Electrical Machines II: Poly phase induction motor, Single phase of induction motor, Alternators, Synchronous motor, Commutator motor, Special A.C. machine.
14. Electrical Power: Generation of Electrical Power, Economics of Generation and Economic Load Dispatch, Transmission of Electrical Power, Mechanical Design of Transmission Line, HVDC Transmission, Substation, Power System Stability, PLC.
15. Microprocessors: Introduction, 8-bit Microprocessor Architecture, Instructions and Programming, 16 bit Microprocessor 8086, Interfacing Peripherals.
16. Non-Conventional Energy: Sources, consumption, Solar Energy Engineering, Wind Energy Engineering, Ocean Energy Engineering, Geothermal Energy Engineering, Bio Energy Engineering, Direct Energy Conversion Systems, Chemical Energy Sources.
17. Electrical Estimating, Costing and Contracting: Elements of estimating, Principles of Contracting, Estimating and Costing of domestic and industrial Wiring, Estimating and costing of service connection, Estimation Of overhead and underground Distribution System, Estimation of Small Substations, Estimating and Costing of repair and maintenance and electrical devices and equipment.
18. AC Distribution and Utilization: AC Distribution, SCADA System for Electrical Distribution, Power Factor Improvement, Electrical Tariff, Cables, Electric Heating and Welding, Electric Drives, Illumination, Electro Chemical Power:
19. Switchgear and Protection: Elements of Protection, Relays, Neutral Earthing, Circuit Interrupting Devices, Arc Formation Process, Circuit Breaker, Protection Scheme, Over Voltage Protection:
20. Installation and maintenance of electrical equipment's: Tools and Accessories, Installation, Commissioning, Earthing, Testing and maintenance of insulation, Maintenance, Trouble shooting, Electrical accidents and safety measures.

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Part-A for all the Posts

- **General English**-vocabulary, grammar, sentence structure, synonyms, antonyms and its correct usage, Sentence Correction, Direct & Indirect Speech, Active & Passive Voice, etc.
- **General Knowledge-**India and its Neighbouring countries, Sports, History, Culture, Geography, Economic scene, General Polity including Indian Constitution, and Scientific Research, current events, Questions on Oil India Limited

Part-B for all the Posts

- **Reasoning**-analogies, similarities and differences, space visualization, problem solving, analysis, judgment, decision making, visual memory, discriminating observation, relationship concepts, verbal and figure classification, non-verbal series, etc.
- **Arithmetic/Numerical Ability & Mental Ability**: - Arithmetical Reasoning, Arithmetical Number Series, Arithmetical Computation, Percentage Problems, Fractions, Time & Work, Distance & Speed, Permutations & Combinations, Data Interpretations, Ratio & Proportion, Areas & Volumes, Mensuration, etc.