नॉर्दर्नकोलफील्ड्सलिमिटेड
(मिनिरत्नकंपनी)
(कोलइण्डियालिमिटेडकीअनुषंगीकंपनी)

एन सी एल
NCL

Northern Coalfields Limited
(AMiniratna Company)
(A subsidiary of Coal India Limited)

श्रमशक्तिविभाग/ Manpower Department

Digital India

स्वच्छ भारत
एक कदम स्वच्छता की ओर

CIN- U10102MP1985GOI003160
An ISO: 9001, ISO: 14001 & OHSAS: 18001 Certified Company
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पत्रांक: एनसीएल/सिंग/श्रमशक्ति एवं भर्ती/20/E-30 दिनांक: 09/03/2020

सूचना/ Notice

Regarding: Publication of syllabus

In reference to the Employment Notification ref no: 109 dated 25/01/2020 for filling different vacancies pertaining to ten different Paramedical cadres through Direct Recruitment, syllabus for written test is hereby enclosed with this notice for all concerned.

पैरामेडिकल संवर्ग के 10 विभिन्न पदो की रिक्तियों को सीधी भर्ती के माध्यम से भरने हेतु निर्गत रोजगार अधिसूचना संदर्भ संख्या: 109 दिनांकित 25/01/2020 के संदर्भ मे आयोजित होने वाली लिखित परीक्षा की विषय वस्तु इस सूचना के साथ सभी संबंधितों के सूचनार्थ संलग्न की जा रही है ।

9/3/2020

(चार्ल्स जुस्टर)
महाप्रबंधक(कार्मिक),एनसीएल

Structure of question paper for Direct Recruitment test held on 29th March 2020

- ***Section A (1-70 questions, MCQ of one mark each)-70 Marks***
  Questions related to technical knowledge of discipline as per current curriculum of Indian Universities/Institutes (Indicative syllabus has been given below)

- **Section B (30 MCQ of one mark each)- 30 Marks**

This section is common for all Posts, will carry 30 questions belonging to:

I. **General Knowledge –About India and its international relations, General Science etc**
II. **General Awareness – About Sports, Defense, Books, Prizes, About Indian democracy, etc.**
III. **Reasoning, Verbal & Mental Ability – Synonym & Antonym (Hindi/English), Grammar, Relationship etc.**
IV. **Quantitative aptitude – Work relationship, Profit & Loss, Speed etc.**

Section A: Indicative Syllabus of Section A(Technical) of written test for appointment to different Para- Medical Staff posts:-

A) Name of the Post: Technician (Dental)Trainee T&S Gr D

1. Applied Physics & Mechanics
2. Applied Chemistry
3. Applied Oral anatomy
4. Dental Materials & Metallurgy
5. Dental Mechanics
6. Basic Knowledge of Computers and Medical Record Management.

Etc. as per the courses offered by the Recognized Institutes

B) Name of the Post: Technician (Dietician) Trainee T&S Gr C

1. Principles of Nutrition
2. Community Nutrition
3. Food Microbiology
4. Family Meal Management
5. Food Preservation
6. Quantity Food Services & Physical Facilities
7. Catering Management
8. Food Science & Food Processing
9. Food Service Management
10. Biochemistry
11. Fundamental Computer Concepts
12. Dietetics

13. Anatomy & Human Physiology
14. Food Quality Control
15. Food Science
16. Diet Therapy
17. Advanced Nutrition
18. Clinical Nutrition
19. Adulteration
20. Nutritional management of Food Safety, Food Cost & Quality Control
21. Exercise & Yoga

Etc. as per the courses offered by the Recognized Institutes

C) Name of the Post: Technician (Pathological) Trainee T&S Gr C

1. Sample collection
2. Sterilization
3. Haematology
4. Clinical pathology (urine examination, stool examination, sputum
5. examination, semen examination, body fluids examination)
6. Biochemistry
7. Microbiology
8. Histopathology
9. Virology
10. Blood banking
11. Serology
12. Skin test
13. Measurement and volume

Etc. as per the courses offered by the Recognized Institutes

D) Name of the Post : Technician (Radiographer) Trainee T&S Gr C:-

1. Basic Radiographic technique
2. Image production and evaluation
3. Radiation physics including radiation protection
4. Equipment operation, newer development and quality control
5. Patient care and education
6. Anatomy of human body

Etc. as per the courses offered by the Recognized Institutes

E) Name of the Post : Physiotherapist (Trainee) T&S Gr C

1. Human Anatomy
2. Human Physiology
3. Pathology
4. Pharmacology

5. Psychology
6. Medical and Surgical Condition
7. Biomechanics
8. Kinesiology
9. Disability Prevention
10. Rehabilitation

Etc. as per the courses offered by the Recognized Institutes

F) Name of the post: Pharmacist (Trainee) T&S Gr C

1. Introduction to different dosage forms.
2. Metrology, Packaging of pharmaceuticals, Size separation by sifting, Clarification and Filtration, Acids, Bases, and Buffers, Antioxidants, Gastrointestinal agents, Topical Agents, Dental Products, Pharmacognosy, Definition, history, and scope of Pharmacognosy.
3. Pharmaceutical aids, various systems of classification of drugs and natural origin, Adulteration and drug evaluation, Introduction to Biochemistry, Carbohydrates, Lipids, Vitamins, Enzymes, Therapeutics
4. Scope of Anatomy and Physiology, Elementary Tissues, Skeletal Systems, Cardiovascular Systems, Respiratory Systems, Muscular Systems, Concept of Health, Nutrition and Health, First aid, Environment and Health.
5. Fundamental Principles of Microbiology, Communicable Diseases, Reading and understanding prescriptions, Study of various types of incompatibilities, Posology, Dispensed Medications, Types of Powders, Lipids and Dosage forms.
6. Introduction of nomenclature of organic chemical systems, Antiseptics and disinfectants, Antileprotic Drugs, Antibiotics, Hypnotics, Introduction to pharmacology, Scope of pharmacology, Drugs: their advantages and disadvantages, General mechanism of drug action, Drugs acting on the central nervous system , Origin and nature of pharmaceutical legislation in India, Principles and significance of professional ethics, Pharmacy Act, 1948
7. The Drugs and Cosmetics Act, 1940, The Drugs and Magic Remedies Act, 1954, Introduction, Drug house management, Definition, function, and classification of Hospitals, Hospital pharmacy, The drug distribution system in the hospital, Manufacturing, Drug Information Service, Introduction to Clinical Pharmacy, Modern dispensing aspects.
8. General Pharmacy, Pharmacokinetics, Pharmacodynamic, Classification and pharmacological aspects of drugs, Uses of common drugs, Drug of toxicity

Etc. as per the courses offered by the Recognized Institutes

G) Name of the Post: Jr. Technician (ECG) Trainee T&S GrD:

1. Definition of the key terms for electrocardiography. Intro to Anatomy/Physiology of Cardiovascular System, Cardiac Cycle, Conduction, pathways, The ECG Aide/Tech Role
2. The electrical conduction system of the heart
3. Recognition, Explanation & the significance of waves, rhythms and artifacts produced by the 12-lead ECG, Name of the standard 12 leads and describe what area of the heart each lead represents.
4. Operation and Maintenance of electrocardiogram equipment. Single-channel or multichannel electrocardiograph.
5. Different types of artifact and its elimination.
6. Reading ECGs using a standard procedure.
7. Effect of medications and electrolyte disturbances which may cause changes to an ECG. Identification of the different types of abnormalities that can be determined from an ECG.
8. Explain the need for a Holter monitor, a treadmill stress test and a thallium stress test.
9. Describe how to use a Holter monitor with a patient.
10. The Purpose of Electrocardiograms, ECG terminology, Equipment/supplies required for ECG , Orientation of ECG exam room/lab, ECG instrumentation, Lead placement, Vectors, Normal ECGs, Calculating rate, Introduce rhythms, Patient Preparation for ECG test
11. Finding Heartbeat, Performing ECGs, Identifying Rhythms, Common Dysrhythmia
12. Charting ECGs, Reading ECGs, Recognize interferences/malfunctionsCorrection of interferences/malfunctions, Recognizing, responding to, reporting emergencies, Emergency response in lab setting, ECG technique, rhythms,rates, charting, lead placement, patient preparation & education.
13. Description of machine types, description of papers, Description of jelly, Techniques of ECG recording, ECG of a Patient with pacemaker, Interpreation of Normal & Abnormal ECG

    Etc. as per the courses offered by the Recognized Institutes

(H) Name of the post: Jr. Technician (EEG) Trainee T&S Gr D

1. Introduction of EEG-Brief History and Background
2. An Orderly Approach to EEG Analysis: Visual Inspection of the Background and Pattern Recognition, Calibration, Orientation and Nomenclature, Clinical Approach
3. The Normal EEG: The Background, Provocation Techniques, Drowsiness and Sleep
4. The Developmental EEG: Premature, Neonatal, Infant, and Children
5. Neonatal EEG, Infant and Pediatric Developmental Changes in the EEG
6. Benign Variants in the EEG
7. The Abnormal EEG: Focal and Generalized Slowing and Significance, Encephalopathy/Delirium, Dementias, Coma, Anesthetic Patterns
8. EEG in the Epilepsies: Routine Interictal EEG in Epilepsy and SpellsIctal EEG Applications and Formats
9. Nonepileptic Spells
10. Epileptic Seizure Classification and Types

11. Long-term Video-EEG Monitoring With Intracranial Electrodes
12. Urgent and Emergent EEG for Evaluation and Treatment of Acute Seizures
13. The Scientific Basis of EEG: Neurophysiology of EEG Generation in the Brain
14. Principles of Digital EEG
15. Principles of Electrical Safety
16. Common Artifacts during EEG Recording
17. EEG Standards and Examples for the Determination of Brain Death
18. Basic human science, , Introduction to Neuroscience, Electroneurodiagnostics technology, Neurological disorder, Clinical correlations, EEG Clinical practicum.

Etc. as per the courses offered by the Recognized Institutes.

(I) Name of the post: Audiometry Technician (Trainee) T&S Gr D

1. Fundamental audiometry methods.Tests of function of the hearing mechanism: Tests of mechanical sound transmission (middle ear function), neural sound transmission (cochlear function), and speech discrimination ability (central integration).
2. Audiologic evaluation: History, patient communication, ear canal assessment and management, immittance, pure-tone testing, masking, speech audiometry, optoacoustic emissions, patient counseling, and report writing.
3. Physiologic measurements - including optoacoustic emissions, acoustic reflexes, auditory pathology, audiologic evaluation.
4. History and Overview of Hearing Examinations : Basic Principles of Sound,Basic Principles of Hearing Loss, EQUIPMENT ,Description of Exam Room in MEC, Otoscope, Tympanometer, Audiometer, Bioacoustic Simulator , Sound Level Meter and , Stand Procedures,Room Set-Up, Stand Calibrations
5. Calibration Checks: Bioacoustic Simulator Calibration Check , Tympanometer Calibration Check Audiometer Calibration Checks, Troubleshooting Calibration Problems
6. Environmental Noise Principles, Environmental Noise Survey Procedure, Daily Monitoring of Ambient Noise Levels
7. Equipment Care and Maintenance Procedures , Sound Level Meter and Accessories
8. Guidelines for Packing Audio Equipment
9. EXAMINATION PROTOCOL
10. Otoscopy
11. Acoustic Immittance – Purpose , Instruments, Maintenance of Instruments , Recording Results of Acoustic Immittance, Troubleshooting Acoustic Immittance
12. Recording Audiometry Results in ISIS, Retesting with Insert Earphones, Recording Retest Results in ISIS Troubleshooting Audiometry , Review of NHANES audiometric procedures , Schematic representation of sound propagation , Sound levels of various activities.

13. Hearing aid, Cochlear implant, Otoacoustic emission, Calibration-Pure tone and speech, Tympanometry, Acoustic reflex, Electro Cocleography, Clinical interpretation.
    Etc. as per the courses offered by the Recognized Institutes

(J) Name of the post: Staff Nurse T&S Gr C

1. Nursing- An Introduction
2. The Hospital, Medical and surgical asepsis, The Hospital House-Keeping
3. Body Mechanics
4. Preparation of Patient's Unit, Admission of a patient, Observation of the patient, Personal Hygiene, Nutrition, Comfort Measures, Elimination, Hot and cold Applications, Administration of Medicines, Injections
5. Discharge of Patient from Hospital
6. The Nursing Process, Care of unconscious patients, Nursing care of the aged.
7. Growth and Development of Adult (Anatomy).
8. Nursing care of Cardiovascular System disorders.
9. Nursing care of Respiratory System disorders.
10. Nursing care of Gastrointestinal System disorders.
11. Nursing care of endocrine System disorders.
12. Nursing care of Integumentary System disorders.
13. Nursing care of Neuromusculoskeletal System disorders.
14. Nursing care of Urinary/Reproductive System disorders.
15. Nursing care of Infectious disease.
16. Mental Health and Psychiatric Nursing.
17. Anatomy & Phisiology.
18. Pregnancy: Abnormalities of Pregnancy, Normal Labour, Abnormal Labour.
19. Puerperium.
20. The Newborn baby.
21. Miscellaneous

Etc. as per the courses offered by the Recognized Institutes