### 1. ಪ್ರವಾಣ ವರ್ಣ — ಲೇಖಾತ್ಮಕ ಪರಿಭಾಷೆ

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<th>ಲೇಖಾತ್ಮಕ ಪರಿಭಾಷೆ</th>
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### 2. ಪ್ರವಾಣ ವರ್ಣ — ರೇಳಿತ್ವ

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### ಪ್ರವಾಣ

1. ಲೇಖಾತ್ಮಕ ಪರಿಭಾಷೆಗಳು ಮಾತ್ರ ಬಳಕೆಯಾಗುತ್ತವೆ. ಅಥವಾ ರೇಳಿತ್ವ ಬಳಕೆಯಾಗುತ್ತವೆ.
2. ಪ್ರವಾಣದ ವಿಧಾನಗಳು ಅಧಿಕಾರಿಗಳು ಎಣ್ಣೆಯಾಗಿ ವಿವರಿಸಲಾಗಿದೆ.
3. ಪ್ರವಾಣ ವಿಧಾನಗಳು (Multiple Choice) ಪ್ರವಾಣಗಳು ಸಾಮಾನ್ಯ ವಿಧಾನಗಳಿಗೆ ಸಂಬಂಧಿಸಿದ್ದರು. ತನ್ನ ವಿಧಾನಗಳು ಸಾಮಾನ್ಯ ವಿಧಾನಗಳಿಗೆ ಸಂಬಂಧಿಸಿದ್ದರು.
4. ಪ್ರವಾಣದ ವಿಧಾನಗಳು ಅನುಷ್ಠಿತವಾಗಿರುವ ನೀತಿಗಳು ಮತ್ತು ಅಧಿಕಾರಗಳು ಸೇರಿದವರು.
5. ಪ್ರವಾಣ ವಿಧಾನಗಳು ಸಾಮಾನ್ಯವಾಗಿ ಆಯಕೆಗಳ ಬೇರೆ ಪ್ರವಾಣಗಳು ಸಂಬಂಧಿಸಿದ್ದರು.
6. ಪ್ರವಾಣಗಳ ವಿಧಾನ ಮತ್ತು ಪ್ರವಾಣಗಳ ವಿಧಾನಗಳು ಸಂಬಂಧಿಸಿದ್ದರು.

### ಎಲ್ಲಾ ಪ್ರವಾಣಗಳು 2023 ಎಣ್ಣೆಯಾಗಿರಲಾಗಿದೆ.
1. Anatomy and Physiology

1.1 General introduction of cell and reproduction of the individual

1.2 Tissues - epithelial, connective, skeletal, muscular and nervous

1.3 General pathology - bacteria, viruses and tumours

1.4 Surface and regional anatomy - anatomical position, head, neck, thorax, abdomen and pelvic cavity

1.5 Skeleton System

1.5.1 Structure, function, development and growth of bones; and healing of fractures

1.5.2 Skull - skull viewed from the above and the below, skull viewed from the side and the front, interior of the skull, interior of the base of the skull, nasal cavity, accessory nasal sinuses, individual bones of the skull

1.5.3 Vertebral column, ribs and sternum

1.5.4 Bones of the upper limb - clavicle, scapula, humerus, radius, ulna, carpal, metacarpal, phalanges, arteries and nerves related to the bones, ossification

1.5.5 Bones of the lower limb - hiphone, slabh, femur, patella, tibia, fibula, tarsal bones, metatarsal bones, phalanges, arches of the foot, arteries and nerves related to the bones, ossification

1.5.6 Joints of the bones of the lower limb - types of joints, muscles and joints of the head, joints and muscles of the neck and trunk, joints and muscles of the upper limb, joint and muscles of the lower limb

1.6 Circulatory System - blood, blood vessels, heart, pulmonary circulation, systemic circulation and veins

1.7 Lymphatic System - lymph, lymphatic vessels, lymph nodes, lymphatic drainage of the body, lymphatic tissue and spleen

1.8 Respiratory System - nose, pharynx, larynx, trachea, bronchi, lungs, physiology of respiration

1.9 Digestive System - mouth, salivary glands, pharynx, oesophagus, stomach, small intestine, large intestine, pancreas, liver, biliary apparatus and function of the alimentary system

1.10 Urinary System - kidneys, ureters, urinary bladder, urethra functions of kidneys and control of micturition

1.11 Nervous System - nervous tissue, central nervous system, brain, spinal cord, peripheral nervous system and autonomic nervous system

1.12 Endocrine System - pituitary, thyroid, parathyroid and adrenal glands

1.13 Reproductive System - male and female

1.14 Skin and the organs of special sense - eye, ear, nose and tongue
2. Radiographic Technique

2.1 General radiography

2.1.1 Routine Radiography Technique for upper limb : fingers, thumb, hand, wrist forearm, elbow, humerus, shoulder, scapula, clavicle

2.1.2 Routine Radiography Technique for the lower limb : toes, foot, calcaneum, ankle, Tibia, fibula, knee, femur, hip joint, neck of femur, pelvis

2.1.3 Routine Radiographic technique for thoracic cage and its contents : chest, heart, ribs and sternum

2.1.4 Routine technique for the abdomen - plain and erect abdomen x-ray

2.1.5 Routine technique for the spine - cervical, thoracic, lumbar, sacrum and coccyx, sacro-illiac joint

2.1.6 Routine technique for the skull - radiograph anatomical landmarks of the skull and process of routine examination of the bones of skull (cranial, facial bone and mandible)

2.1.7 To locate the following by x-rays (scaphoid, foreign body in the hand, head of humerues and axial shoulder, acromio-calvicular joints, sterno-calvicular joints, foreign body in the foot, lateral foot weight bearing, skyline view of patella, tibial Tuberosity)

2.1.8 Supplementary views of the chest and abdomen (apical views, lordotic view and decubitus, oblique views for heart size & lateral with barium swallow, thoracic inlet, diaphragm excursion, inhaled or swallowed foreign body, imperforated anus); purposes of these views

2.1.9 Supplementary views for the spine and pelvis (soft tissue) - neck, odontoid peg (open-mouth), vertebral foramina of cervical spine, upper thoracic spine oblique lumbar spine, lumbo-sacral junction, oblique sacro-illiac joints, illum, acetabulum, pelvimeter, skeleton survey

2.1.10 Supplementary views for the skull (towne's view, submento vertical, sella turcica, temporo-mandibular joint, nasal bone, paranasal sinuses, mastoids, orbits, optic foramina, foreign body in the eye, dental radiography)

2.1.11 Registration process - steps of registration of patients; importance of a monthly and annual record, filling system and preparing the performa invoices; filling of radiographs and reports (x-ray No, hospital number, patient's name, cross reference bill, with patient's name)

2.2 Radiographic examination with contrast media

2.2.1 Contrast media – definition, types, methods of introducing, reactions; name of the emergency equipments and drugs needed to cope with reactions

2.2.2 Radiographic investigation of gastro-intestinal tract using contrast media - Barium swallow, Barium meal, Barium follow through, Examination of GI tract, Ba-enema, Small bowel enema, Loopogram and state the role of a radiographer during fluoroscopy
3. Patient Care and Management

3.1 Hospital, Patient and Radiographer - clinical and legal responsibility

3.2 Features of general patient care - general preliminaries to the examination, moving chair and stretcher patients, anaesthetized patient, hygiene in the x-ray department, general comfort and reassurance for the patient

3.3 Drugs in the x-ray department - poisons and dangerous drugs, units of measurement, drugs used in preparation of the patient, contrast agents used in x-ray examinations, drugs used in resuscitation, labelling and issuing

3.4 Sterilization and sterile techniques - methods of sterilization, central sterile supply, preparation of the hands for aseptic procedures

3.5 Preparation of the patient - general abdominal preparation, clothing of the patient

3.6 First aid in the x-ray department - radiological emergencies, shock, haemorrhage burns, scalds, loss of consciousness, asphyxia, fractures and electric shock

3.7 Medico-legal aspects of the radiographer's work - breach of professional confidence, negligence, procedure in the event of an accident and importance of records

4. Radiographic Photography

4.1 Film - construction and composition of x-ray film, types of x-ray film, characteristic curve, special sensitivity and role of dyeing, film speed, density, contrast, sensitometry, artifacts and its causes

4.2 Intensifying Screen - construction and composition, screen speed, sharpness, coating weight, fluorescent material and phosphoresence, new phosphors

4.3 Image - production of radiographic image; component of radiographic image - contrast, sharpness, resolution, exposure factors and absorption coefficient
5. Radiographic equipment

5.1 Historical background of x-ray and its production - X-ray tube construction; stationary and rotating x-ray tube and recent advancement; Tube rating cooling and care of x-ray tube and its faults

5.2 Control panel, x-ray table and tube column - type of x-ray table, different metering equipment, X-ray tube support

5.3 Fluoroscopic equipment - conventional and digital fluoroscopy, image intensifier tube

5.4 Control of scatter radiation and beam restricting devices - secondary radiation grids, air gap technique

5.5 Portable and mobile x-ray units - capacitor discharge and c-arm

5.6 Computed and Direct Digital Radiography

5.7 Introduction to modern modalities (CT, MRI, mammography)

6. Radiation Physics

6.1 Atomic structure - nucleus, electron orbits and energy levels

6.2 Production and properties of x-ray - general radiation (Bremsstrahlung), characteristic radiation, intensity of x-ray beams, target material, voltage applied

6.3 Basic interactions between x-rays and matter - coherent scattering, photoelectric effect, Compton scattering, pair production, photoelectric disintegration

6.4 Radiation measurement and units - construction and working of the free air ionization chamber; Thimble ionization chamber and condenser ionization chamber

6.5 Radiation protection - historical introduction or why the protection is necessary against the radiation, maximum permissible dose, tabulation of the recommended maximum permissible doses for the different parts of the body, following the code of practice, identifying the protective materials

6.6 Personnel monitoring - necessity of personnel monitoring and monitoring instruments (film badge, ionization chamber and thermoluminescent dose meter)

6.7 Safety requirements for operating X-ray unit
7. सामान्य ज्ञान, तथ्य एवं निर्माण

7.1 नेपालको सांस्कृतिक, ऐतिहासिक, आर्थिक, नैराग्यक, सामाजिक र राजनीतिक समस्याहरू सम्बन्धी जानकारी

7.2 राष्ट्रिय र अन्तर्राष्ट्रीय महाकाव्यको समस्याहरू र चलनहरू: राजनीतिक, आर्थिक, नैराग्यक, राष्ट्रीयता

7.3 विश्वविद्यालय नेपालको विविधादेशको सामाजिक जानकारी

7.4 नेपाल भाषाको सम्बन्धी सामाजिक जानकारी

7.5 नेपाल भाषाको विषय, २०४८ र सहायक भाषाको निर्माणक, २०३७

प्रश्न पृष्ठ/पा्ष्थको पाठ्यकक्षामा प्रश्नकक्ष प्रश्नकक्ष तथ्य एवं निर्माण विश्वसनीय प्रश्नकक्ष सही प्रेष्न / पाश्च तथ्य एवं निर्माणकक्ष प्रश्नकक्ष सही प्रेष्न / पाश्च.

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