प्रदेश लोक सेवा आयोग, कर्णाली प्रदेश

प्रदेश निजामती सेवाको स्वास्थ्य सेवा, विविध समूह, डायलासिस उपसमूह, सहायकस्तर पाँचौं तह, डायलासिस टेक्निसियन पदको खुला, अन्तर तह र आन्तरिक अन्तर समूह प्रतियोगितात्मक लिखित परीक्षाको पाठ्यक्रम र परीक्षा योजना

पाठ्यक्रमको रुपरेखाः यस पाठ्यक्रम योजनालाई दुई चरणमा विभाजन गरिएको छ।

परीक्षाको चरण	परीक्षाको किसिम	पूर्णाङ्क
प्रथम चरण	लिखित परीक्षा (Written Examination)	२००
अन्तिम चरण	कम्प्युटर सीप परीक्षण (Computer Skill Test)	१०
	अन्तर्वार्ता (Interview)	३०

परीक्षा योजना (Examination Scheme)

१. प्रथम चरणः लिखित परीक्षा (Written Examination) पूर्णाङ्कः २००

पत्र	विषय	पूर्णाङ्क	उत्तीर्णाङ्क	परीक्षा प्रणाली		प्रश्नसंख्याxअङ्क	समय
प्रथम	सामान्य ज्ञान र सार्वजनिक व्यवस्थापन (General awareness & Public management)	१००	४०	वस्तुगत (Objective)	बहुवैकल्पिक प्रश्न (MCQs)	२०x२=४०	४५ मिनेट
	सेवा सम्बन्धी ज्ञान (Service Based knowledge)					३०x२=६०	
द्वितीय	प्राविधिक विषय (Technical Subject)	१००	४०	विषयगत (Subjective)	छोटो उत्तर लामो उत्तर	१२x५=६० ४x१०=४०	२ घण्टा १५ मिनेट

२. अन्तिम चरणः कम्प्युटर सीप परीक्षण र अन्तर्वार्ता पूर्णाङ्कः ४०

पत्र/विषय	पूर्णाङ्क	परीक्षा प्रणाली
कम्प्युटर सीप परीक्षण (Computer Skill test)	१०	प्रयोगात्मक (Practical)
अन्तर्वार्ता (Interview)	३०	मौखिक (Oral)

द्रष्टव्यः

१. यस पाठ्यक्रम योजनालाई प्रथम चरण र अन्तिम चरण गरी दुई चरणमा विभाजन गरिएको छ।

२. प्रश्नपत्रको भाषा नेपाली वा अङ्ग्रेजी वा नेपाली र अङ्ग्रेजी दुवै हुन सक्नेछ।

३. परीक्षाको भाषा नेपाली वा अङ्ग्रेजी अथवा नेपाली र अङ्ग्रेजी दुवै हुन सक्नेछ।

४. खुला र समावेशी समूहको एउटै प्रश्नपत्रबाट परीक्षा सञ्चालन हुनेछ।

५. प्रथम पत्र र द्वितीय पत्रको लिखित परीक्षा छुट्टाछुट्टै हुनेछ। दुवैपत्रको परीक्षा एकैदिनमा वा छुट्टाछुट्टै दिनमा लिन सकिनेछ।

६. वस्तुगत बहुवैकल्पिक (Multiple Choice) प्रश्नहरुको गलत उत्तर दिएमा प्रत्येक गलत उत्तर बापत २० प्रतिशत अङ्क कट्टा गरिनेछ। तर उत्तर नदिएमा त्यस बापत अङ्क दिइने छैन र अङ्क कट्टा पनि गरिने छैन।

७. बहुवैकल्पिक प्रश्नहरु हुने परीक्षामा मोवाईल फोन, स्मार्ट वाच, क्याल्कुलेटर जस्ता सामग्रीहरु प्रयोग गर्न पाइने छैन।

८. विषयगत प्रश्नहरुको हकमा तोकिएको अङ्कमा एउटा लामो प्रश्न वा एउटै प्रश्नका दुई वा दुई भन्दा बढी भाग (Two or more parts of a single question) वा एउटा प्रश्न अन्तर्गत दुई वा बढी टिप्पणीहरु (Short notes) सोध्न सकिनेछ।

९. परीक्षामा सोधिने प्रश्नसंख्या, अङ्क र अङ्कभार यथासम्भव सम्बन्धित पत्र/विषयमा दिईए अनुसार हुनेछ।

१०. विषयगत प्रश्न हुने पत्र/विषयका प्रत्येक भाग/खण्डका लागि छुट्टाछुट्टै उत्तरपुस्तिकाहरु हुनेछन्। परीक्षार्थीले प्रत्येक भाग/खण्डका प्रश्नहरुको उत्तर सोही भाग/खण्डको उत्तरपुस्तिकामा लेख्नुपर्नेछ।

११. यस पाठ्यक्रम अनुसारका पत्र/विषयका विषयवस्तुमा जुनसुकै कुरा लेखिएको भएतापनि पाठ्यक्रममा परेका कानून, ऐन, नियम तथा नीतिहरु परीक्षाको मिति भन्दा ३ महिना अगावै संशोधन भई कायम रहेका विषयवस्तुलाई यस पाठ्यक्रममा परेको सम्झनु पर्दछ।

१२. प्रथम चरणको लिखित परीक्षाबाट छनौट भएका उम्मेदवारहरुलाई मात्र अन्तिम चरणको कम्प्युटर सीप परीक्षण र अन्तर्वार्तामा सम्मिलित गराइनेछ।

१३. प्रथम चरणको लिखित परीक्षाको प्राप्ताङ्क, अन्तिम चरणको कम्प्युटर सीप परीक्षण र अन्तर्वार्ताको प्राप्ताङ्कको आधारमा अन्तिम परीक्षाफल प्रकाशित गरिनेछ।

१४. पाठ्यक्रम लागू हुने मितिः २०८१।१२।०५

प्रदेश लोक सेवा आयोग, कर्णाली प्रदेश

प्रदेश निजामती सेवाको स्वास्थ्य सेवा, विविध समूह, डायलासिस उपसमूह, सहायकस्तर पाँचौं तह, डायलासिस टेक्निसियन पदको खुला, अन्तर तह र आन्तरिक अन्तर समूह प्रतियोगितात्मक लिखित परीक्षाको पाठ्यक्रम

प्रथम पत्र (Paper I): सामान्य ज्ञान र सार्वजनिक व्यवस्थापन तथा सेवा सम्बन्धी ज्ञान

भाग (Part I):

सामान्य ज्ञान र सार्वजनिक व्यवस्थापन

(General awareness & Public management)

Section -A (१० प्रश्न×२अङ्क= २०अङ्क)

१. सामान्य ज्ञान (General Awareness)

१.१. नेपालको भौगोलिक अवस्था, प्राकृतिक स्रोत र साधनहरु

१.२. कर्णाली प्रदेशको ऐतिहासिक, सांस्कृतिक र सामाजिक अवस्था सम्बन्धी जानकारी

१.३. कर्णाली प्रदेशको आर्थिक अवस्था र चालु आवधिक योजना सम्बन्धी जानकारी

१.४. मानव जीवनमा प्रत्यक्ष प्रभाव पार्ने विज्ञान र प्रविधिका महत्त्वपूर्ण उपलब्धिहरु

१.५. जैविक विविधता, दिगो विकास, वातावरण प्रदुषण, जलवायु परिवर्तन र जनसङ्ख्या व्यवस्थापन

१.६. नेपालको संविधान (भाग १ देखि भाग ५ सम्म र अनुसूचीहरु)

१.७. संघ, प्रदेश र स्थानीय तहको शासन व्यवस्था सम्बन्धी जानकारी

१.८. संयुक्त राष्ट्र संघ, सार्क, बिमस्टेक सम्बन्धी जानकारी

१.९. राष्ट्रिय तथा अन्तर्राष्ट्रिय महत्त्वका समसामयिक गतिविधिहरु

Section –B (१० प्रश्न×२अङ्क= २०अङ्क)

२. सार्वजनिक व्यवस्थापन (Public management)

२.१. कार्यालय व्यवस्थापन

२.१.१ कार्यालयः परिचय, महत्त्व, कार्य र प्रकार

२.१.२ सहायक कर्मचारीका कार्य र गुणहरु

२.१.३ कार्यालय स्रोत साधनः परिचय र प्रकार

२.१.४ कार्यालयमा सञ्चारको महत्त्व, किसिम र साधन

२.१.५ कार्यालय कार्यविधिः पत्र व्यवहार, दर्ता र चलानी, फाइलिङ, परिपत्र, तोक आदेश, टिप्पणी लेखन

२.१.६ अभिलेख व्यवस्थापन

२.२. प्रदेश निजामती सेवा ऐन र स्थानीय सेवा ऐनमा भएका व्यवस्थाहरु

२.२.१ निजामती सेवाको गठन, संगठन संरचना, पदपूर्ति गर्ने तरिका र प्रक्रियाहरु

२.२.२ कर्मचारीको नियुक्ति, सरुवा, वढुवा, विदा, विभागीय सजाय र अवकाश

२.२.३ कर्मचारीले पालना गर्नुपर्ने आचरण, नैतिक दायित्त्व र कर्तव्यहरु

२.३. सार्वजनिक सेवा प्रवाहको अर्थ, सेवा प्रवाह गर्ने निकाय, तरिका र माध्यमहरु

२.४. मानव अधिकार, सुशासन र सूचनाको हक सम्बन्धी सामान्य जानकारी

२.५. सार्वजनिक वडापत्र

२.६. कानूनी शासन र कर्मचारीतन्त्र

भाग (Part II):

विषयः सेवा सम्बन्धी ज्ञान (Service Based Knowledge) (३०प्रश्न×२अङ्क= ६०अङ्क)

1. ANATOMY, PHYSIOLOGY, BIOCHEMISTRY, PHARMACOLOGY, MICROBIOLOGY
   - 1.1. Anatomy - Organization of the body, cell, tissues and regions. G.I.T., Respiratory System, Excretory System, Genital System, Endocrine glands and special senses. Nervous system, Lymphatic System, Skeletal System
   - 1.2. Physiology Functions: Muscular System, Nervous System, Cardio-vascular System, Respiratory System, Digestive System, Excretory System, Endocrine System, Reproductive System
   - 1.3. Biochemistry, Pharmacology and Microbiology
     - 1.3.1. Biochemistry:
       - 1.3.1.1. Electrolytes
       - 1.3.1.2. Digestion and absorption of carbohydrates, Maintenance of normal blood glucose level and factors regulating blood glucose level.
       - 1.3.1.3. Formation of urea and creatinine.
       - 1.3.1.4. Tests for detection of sugar, urea, creatinine, protein in blood and urine; and their indications during and after dialysis
       - 1.3.1.5. Normal range of constituents, Factors maintaining pH of blood Serum electrolyte levels
       - 1.3.1.6. Normal physical characteristics of urine, Chemical composition of urine and their significance
       - 1.3.1.7. Analysis of abnormal urine
     - 1.3.2. Pharmacology Introduction
       - 1.3.2.1. Brief history of Materia Medica, Drug Standards and laws, Dosage of drugs
       - 1.3.2.2. Dose – Minimal, Maximum, Toxic and Lethal.
       - 1.3.2.3. Idiosyncrasy, Hyper sensitivity
       - 1.3.2.4. Sites of drug Action: Local, Systemic
       - 1.3.2.5. Routes of drug administration
       - 1.3.2.6. Chemotherapeutics of some common Drugs: Analgesics, Antiseptics, Disinfectants, Antibiotics, Tranquillizers, Anaesthetics (local & General)
     - 1.3.3. Microbiology
       - 1.3.3.1. Sterilization and disinfection,
       - 1.3.3.2. Bacteriology - classification, morphology of bacteria,
       - 1.3.3.3. Immunity
       - 1.3.3.4. Common diseases caused by different types of organisms. Staph, Strepto, C. tetani, and welchii, Anthrax, Mycobacterium tuberculosis, M. leprae. E. coli, Salmonella, Shigella, Vibrio, Pseudomonas
       - 1.3.3.5. Virology - Hepatitis, HIV, Herpes etc.
       - 1.3.3.6. Nosocomial Infections
       - 1.3.3.7. Waste disposal
2. Theory of Dialysis:
   - 2.1. Theory of Haemodialysis
     - 2.1.1. Monitoring of the patient in haemodialysis

2.1.2. Anatomy of Artificial kidney

2.1.3. Physiology

2.1.3.1. Diffusion, Osmosis-Dialysis defined-concentration gradient, Direction of Fluid Flow, Hydrostatic pressure and resistance pressure gradient ultra filtration dialysis.

2.1.4. Vital signs: Basic interpretation of Pulse Rate, Blood Pressure, Respiratory Rate, Temperature

2.1.5. Dialysis efficiency, Dialysate flow rate, Dialysate temperature

2.2. Medical Overview:

2.2.1. The distribution of water function of the body fluids, composition of the extra cellular space, function of the normal kidney

2.2.2. Acute renal failure, Chronic Renal Failure.

2.2.3. Function of the artificial kidney

2.3. The Dialysis Systems: Access to the blood stream, Dialysers, Dialysate, Dialysate delivery systems and monitoring devices, Physiology of Artificial Kidney

2.4. Introduction of Patient to Haemodialysis: Predialysis education of the patient, Initiation of Haemodialysis, Haemodialysis timing, the start of Haemodialysis, complication during the first dialysis , dialysis disequilibrium syndrome.

2.5. Access to the Circulation: General description of the cannula system, cannula implantation, cannula activity and immobilization of the cannulated limb, position of the cannulated limb, Cannula cleaning, cannula complication, cannula infections, clotting and declotting the subcutaneous artificial venous fistula, advances in the access to the circulation.

2.6. Dialysers: Types of dialysers, comparative study of all available dialysers, Wearable artificial kidneys, disk perfusion replacing ill gasket and housing

2.7. Anticoagulation: Heparin and warfarin and its uses in dialysis patients, heparinisation and its pitfalls

2.8. Water Treatment Plant: Water analysis eg; pH, Conductivity, Hardness and Water according to AAMI standards

2.9. Water softner, Deionizer, Reverse Osmosis. Various filters used in water supply to Haemodialysis room. Water supply and its maintenance.

2.10. Washing the Accessories of Haemodialysis:

3. Fundamentals of Haemodialysis

3.1. Complications During Haemodialysis and their Management: Line cannula separation, blood leaks, and clotting, acute bleeding, hypotension, hypertension, fever, nausea, vomiting, headache, cardiac arrythmias, chest pain, muscle cramps, restlessness, pruritus and convulsions.

3.2. Discontinuing Dialysis: Discontinuing uncoupling, Saline rinse.

3.3. Re-Use of Dialysers: Storage and re-use of kill dialysers, re-use of hollow fibre dialysers, Hydrogen peroxide method, vacuum reservoir method, Reverse osmosis method.

3.4. Aseptic filling of drains & medication port.

3.5. Dialysate and Dialysate Delivery Systems: Dialysate composition, Preparation, delivery system, batch type and proportioning, Drake willock century and cordis operation maintenance and troubleshooting.

3.6. Initiation of Haemodialysis: Description of the dialyser, cleaning the dialyser, kill dialyser, kill dialyser assembly, dialyser testing and sterilization, priming the dialyser, coupling the patient with cannula or fistula to the dialyser.

3.7. Monitoring the dialysis procedure; monitoring dialysate concentration, monitoring dialysate flow, monitoring dialysate temperature, negative pressure and drip chamber pressure, monitoring blood leak detectors, air levels detectors, monitoring heparin infusion and blood flow, monitoring patient variables.

3.8. Medical problems in the chronic haemodialysis patients: Hypertension, Congestive heart failure, Secondary hyper-parathyroid disease, Metastatic calcification, blood requirements, peripheral neuropathy, arthritis, hepatitis, uremic pericarditis, Refractory anemia and use of erythropoetin.

3.9. Ultrafiltration

3.10. Clinical aspects of renal dysfunction

3.10.1. Uremia

3.10.2. Chronic renal failure

3.10.3. Acute renal failure

3.11. Dialysate Supply Subsystems: Water pretreatment, Water pressure regulation, Temperature control, Temperature sensors, Chemical proportioning, Degassing, Flow and negative pressure control, Monitors, Conductivity Cell, Chemical concentration, Monitors, Temperature monitors, Pressure monitors, Flow rate monitors, Blood leak monitors, Readout devices alarms

3.12. Bacteriology of Haemodialysis: Indentification of common infections organisms, Cannula site infection, Virus infection, Sampling procedures, Contamination problems, Sterile technique and Isolation technique.

3.13. Adequacy of Dialysis: Clinical well being oedema, hypertension, food intake, ability to walk and rehabilitation.

4. Renal Replacement Therapy

4.1. Dialysis for poisoning

4.2. Acute dialysis: Special precautions for carrying out the dialysis of actually ill patient, different types of dialysis haemo, peritoneal haemoperfusion,

4.3. Indication for dialysis

4.4. Rehabilitation of patient, social, psychological and financial.

4.5. Intermittent peritoneal dialysis: Anatomy of peritonium, blood supply, peritoneal dialysis fluid and aseptic precautions, Indications for peritoneal dialysis, complications of peritoneal dialysis, maintenance of patients undergoing peritoneal dialysis, continuous ambulatory peritoneal dialysis, continuous cycle peritoneal dialysis, tidal peritoneal dialysis.

4.6. Chart maintenance of fluid balance, AV fistula and immunization of HD patients and PD, monitoring the haemodialysis in ICU.

5. MISCELLANEOUS

5.1. Basic Life Support (BLS) and Cardiopulmonary Resuscitation (CPR)

5.2. Non-surgical Renal replacement therapy other than HD and PD.

5.3. Dialysis of patient before and after renal transplantation.

5.4. Composition of dialysis team and duties, Responsibilities of each member of the team

5.5. Psychiatric complications in chronic dialysis patients, identifying depression and anxiety

5.6. Social groups, influence of family on individuals health, family and nutrition, effects of sickness in family, psychosomatic diseases, social problems of disabled e.g. poverty and unemployment, alcoholism
5.7. Social security and legal provisions for the dialysis and prospective kidney transplant patients.
5.8. Health insurance
5.9. Transplant act, 2055 B.S. with focus on kidney transplant
5.10. Brain death, organ donation, organ donation restrictions and transplantation challenges.

6. Communication and patient education

6.1. Diet and nutrition in patient, with special reference to foods rich in sodium, potassium, calcium and phosphorus, and high protein diet
6.2. Protein requirement in a dialysis patient and estimation of amount of protein from diet
6.3. Patient education on topics like; medication and dietary adherence, infection prevention, mental well being
6.4. Patient and technician safety in dialysis with focus on infection prevention, universal precaution, workplace hazards for technicians and role of vaccination in dialysis patients, with special reference to hepatitis B and Influenza vaccination, hazards related to repeated blood transfusion and prevention of those hazards

<u>प्रथम पत्रको प्रश्नसंख्या तालिका</u>

प्रथम पत्रबाट यथासम्भव निम्नानुसार प्रश्नहरु सोधिनेछ।

भाग	खण्ड	विषयबस्तु	परीक्षा प्रणाली	अङ्कभार	प्रश्नसंख्या×अङ्क
I	A	सामान्यज्ञान	बस्तुगत बहुवैकल्पिक प्रश्न	२०	१०प्रश्न×२अङ्क =२०अङ्क
	B	सार्वजनिक व्यवस्थापन		२०	१०प्रश्न×२अङ्क =२०अङ्क
II		सेवा सम्बन्धी ज्ञान		६०	३०प्रश्न×२अङ्क =६०अङ्क

प्रथम पत्रको भाग (Part II) सेवा सम्बन्धी ज्ञान विषयका एकाईवाट यथासम्भव निम्नानुसार प्रश्नहरु सोधिनेछ।

एकाई	१	२	३	४	५	६
वस्तुगत प्रश्नसंख्या	४	७	८	६	३	२

प्रदेश लोक सेवा आयोग, कर्णाली प्रदेश

प्रदेश निजामती सेवाको स्वास्थ्य सेवा, विविध समूह, डायलासिस उपसमूह, सहायकस्तर पाँचौं तह, डायलासिस टेक्निसियन पदको खुला, अन्तर तह र आन्तरिक अन्तर समूह प्रतियोगितात्मक लिखित परीक्षाको पाठ्यक्रम

द्वितीय पत्र (Paper II): प्राविधिक विषय

(Section-A) 60 Marks

1. ANATOMY, PHYSIOLOGY, BIOCHEMISTRY, PHARMACOLOGY, MICROBIOLOGY
   - 1.1. Anatomy - Organization of the body, cell, tissues and regions. G.I.T., Respiratory System, Excretory System, Genital System, Endocrine glands and special senses. Nervous system, Lymphatic System, Skeletal System
   - 1.2. Physiology Functions: Muscular System, Nervous System, Cardio-vascular System, Respiratory System, Digestive System, Excretory System, Endocrine System, Reproductive System
   - 1.3. Biochemistry, Pharmacology and Microbiology
     - 1.3.1. Biochemistry:
       - 1.3.1.1. Electrolytes
       - 1.3.1.2. Digestion and absorption of carbohydrates, Maintenance of normal blood glucose level and factors regulating blood glucose level.
       - 1.3.1.3. Formation of urea and creatinine.
       - 1.3.1.4. Tests for detection of sugar, urea, creatinine, protein in blood and urine; and their indications during and after dialysis
       - 1.3.1.5. Normal range of constituents, Factors maintaining pH of blood Serum electrolyte levels
       - 1.3.1.6. Normal physical characteristics of urine, Chemical composition of urine and their significance
       - 1.3.1.7. Analysis of abnormal urine
     - 1.3.2. Pharmacology Introduction
       - 1.3.2.1. Brief history of Materia Medica, Drug Standards and laws, Dosage of drugs
       - 1.3.2.2. Dose: Minimal, Maximum, Toxic and Lethal.
       - 1.3.2.3. Idiosyncrasy, Hyper sensitivity
       - 1.3.2.4. Sites of drug Action: Local, Systemic
       - 1.3.2.5. Routes of drug administration
       - 1.3.2.6. Chemotherapeutics of some common Drugs: Analgesics, Antiseptics, Disinfectants, Antibiotics, Tranquillizers, Anaesthetics (local & General)
     - 1.3.3. Microbiology
       - 1.3.3.1. Sterilization and disinfection,
       - 1.3.3.2. Bacteriology - classification, morphology of bacteria,
       - 1.3.3.3. Immunity
       - 1.3.3.4. Common diseases caused by different types of organisms. Staph, Strepto, C. tetani, and welchii, Anthrax, Mycobacterium tuberculosis, M. leprae. E. coli, Salmonella, Shigella, Vibrio, Pseudomonas
       - 1.3.3.5. Virology - Hepatitis, HIV, Herpes etc.
       - 1.3.3.6. Nosocomial Infections
       - 1.3.3.7. Waste disposal

2. Theory of Dialysis:
    2.1. Theory of Haemodialysis
        2.1.1. Monitoring of the patient in haemodialysis
        2.1.2. Anatomy of Artificial kidney
        2.1.3. Physiology
            2.1.3.1. Diffusion, Osmosis-Dialysis defined-concentration gradient, Direction of Fluid Flow, Hydrostatic pressure and resistance pressure gradient ultra filtration dialysis.
        2.1.4. Vital signs: Basic interpretation of Pulse Rate, Blood Pressure, Respiratory Rate, Temperature
        2.1.5. Dialysis efficiency, Dialysate flow rate, Dialysate temperature
    2.2. Medical Overview:
        2.2.1. The distribution of water function of the body fluids, composition of the extra cellular space, function of the normal kidney
        2.2.2. Acute renal failure, Chronic Renal Failure.
        2.2.3. Function of the artificial kidney
    2.3. The Dialysis Systems: Access to the blood stream, Dialysers, Dialysate, Dialysate delivery systems and monitoring devices, Physiology of Artificial Kidney
    2.4. Introduction of Patient to Haemodialysis: Predialysis education of the patient, Initiation of Haemodialysis, Haemodialysis timing, the start of Haemodialysis, complication during the first dialysis , dialysis disequilibrium syndrome.
    2.5. Access to the Circulation: General description of the cannula system, cannula implantation, cannula activity and immobilization of the cannulated limb, position of the cannulated limb, Cannula cleaning, cannula complication, cannula infections, clotting and declotting the subcutaneous artificial venous fistula, advances in the access to the circulation.
    2.6. Dialysers: Types of dialysers, comparative study of all available dialysers, Wearable artificial kidneys, disk perfusion replacing ill gasket and housing
    2.7. Anticoagulation: Heparin and warfarin and its uses in dialysis patients, heparinisation and its pitfalls
    2.8. Water Treatment Plant: Water analysis eg; pH, Conductivity, Hardness and Water according to AAMI standards
    2.9. Water softner, Deionizer, Reverse Osmosis. Various filters used in water supply to Haemodialysis room. Water supply and its maintenance.
    2.10. Washing the Accessories of Haemodialysis:
3. Fundamentals of Haemodialysis
    3.1. Complications During Haemodialysis and their Management: Line cannula separation, blood leaks, and clotting, acute bleeding, hypotension, hypertension, fever, nausea, vomiting, headache, cardiac arrythmias, chest pain, muscle cramps, restlessness, pruritus and convulsions.
    3.2. Discontinuing Dialysis: Discontinuing uncoupling, Saline rinse.
    3.3. Re-Use of Dialysers: Storage and re-use of kill dialysers, re-use of hollow fibre dialysers, Hydrogen peroxide method, vacuum reservoir method, Reverse osmosis method.
    3.4. Aseptic filling of drains & medication port.

3.5. Dialysate and Dialysate Delivery Systems: Dialysate composition, Preparation, delivery system, batch type and proportioning, Drake willock century and cordis operation maintenance and troubleshooting.

3.6. Initiation of Haemodialysis: Description of the dialyser, cleaning the dialyser, kill dialyser, kill dialyser assembly, dialyser testing and sterilization, priming the dialyser, coupling the patient with cannula or fistula to the dialyser.

3.7. Monitoring the dialysis procedure; monitoring dialysate concentration, monitoring dialysate flow, monitoring dialysate temperature, negative pressure and drip chamber pressure, monitoring blood leak detectors, air levels detectors, monitoring heparin infusion and blood flow, monitoring patient variables.

3.8. Medical problems in the chronic haemodialysis patients: Hypertension, Congestive heart failure, Secondary hyper-parathyroid disease, Metastatic calcification, blood requirements, peripheral neuropathy, arthritis, hepatitis, uremic pericarditis, Refractory anemia and use of erythropoetin.

3.9. Ultrafiltration

3.10. Clinical aspects of renal dysfunction

3.10.1. Uremia

3.10.2. Chronic renal failure

3.10.3. Acute renal failure

3.11. Dialysate Supply Subsystems: Water pretreatment, Water pressure regulation, Temperature control, Temperature sensors, Chemical proportioning, Degassing, Flow and negative pressure control, Monitors, Conductivity Cell, Chemical concentration, Monitors, Temperature monitors, Pressure monitors, Flow rate monitors, Blood leak monitors, Readout devices alarms

3.12. Bacteriology of Haemodialysis: Indentification of common infections organisms, Cannula site infection, Virus infection, Sampling procedures, Contamination problems, Sterile technique and Isolation technique.

3.13. Adequacy of Dialysis: Clinical well being oedema, hypertension, food intake, ability to walk and rehabilitation.

(Section-B) 40 Marks

4. Renal Replacement Therapy

4.1. Dialysis for poisoning

4.2. Acute dialysis: Special precautions for carrying out the dialysis of actually ill patient, different types of dialysis haemo, peritoneal haemoperfusion,

4.3. Indication for dialysis

4.4. Rehabilitation of patient, social, psychological and financial.

4.5. Intermittent peritoneal dialysis: Anatomy of peritonium, blood supply, peritoneal dialysis fluid and aseptic precautions, Indications for peritoneal dialysis, complications of peritoneal dialysis, maintenance of patients undergoing peritoneal dialysis, continuous ambulatory peritoneal dialysis, continuous cycle peritoneal dialysis, tidal peritoneal dialysis.

4.6. Chart maintenance of fluid balance, AV fistula and immunization of HD patients and PD, monitoring the haemodialysis in ICU.

5. MISCELLANEOUS

5.1. Basic Life Support (BLS) and Cardiopulmonary Resuscitation (CPR)
5.2. Non-surgical Renal replacement therapy other than HD and PD.
5.3. Dialysis of patient before and after renal transplantation.
5.4. Composition of dialysis team and duties, Responsibilities of each member of the team
5.5. Psychiatric complications in chronic dialysis patients, identifying depression and anxiety
5.6. Social groups, influence of family on individuals health, family and nutrition, effects of sickness in family, psychosomatic diseases, social problems of disabled e.g. poverty and unemployment, alcoholism
5.7. Social security and legal provisions for the dialysis and prospective kidney transplant patients.
5.8. Health insurance
5.9. Transplant act, 2055 B.S. with focus on kidney transplant
5.10. Brain death, organ donation, organ donation restrictions and transplantation challenges.

6. Communication and patient education

6.1. Diet and nutrition in patient, with special reference to foods rich in sodium, potassium, calcium and phosphorus, and high protein diet
6.2. Protein requirement in a dialysis patient and estimation of amount of protein from diet
6.3. Patient education on topics like; medication and dietary adherence, infection prevention, mental well being
6.4. Patient and technician safety in dialysis with focus on infection prevention, universal precaution, workplace hazards for technicians and role of vaccination in dialysis patients, with special reference to hepatitis B and Influenza vaccination, hazards related to repeated blood transfusion and prevention of those hazards

द्वितीय पत्रको प्रश्नसंख्या तालिका

द्वितीय पत्रको एकाईहरुबाट यथासम्भव निम्नानुसार विषयगत प्रश्नहरु सोधिनेछ।

खण्ड	Section-A			Section-B		
एकाई	१	२	३	४	५	६
छोटो प्रश्न	२	३	३	२	१	१
लामो प्रश्न	१		१	१	१	

२. कम्प्युटर सीप परीक्षण (Computer Skill Test)

विषयः कम्प्युटर सीप परीक्षण (Computer Skill Test)

विषय	पूर्णाङ्क	विषयवस्तु शीर्षक	अङ्क	समय
कम्प्युटर सीप परीक्षण (Computer Skill Test)	१०	Nepali Typing	२ अङ्क	५ मिनेट
		English Typing	२ अङ्क	५ मिनेट
		Ms word	२ अङ्क	१० मिनेट
		Electronic Spreadsheet	२ अङ्क	
		Presentation System	१ अङ्क	
		Windows basic, Email and Internet	१ अङ्क	
जम्मा			१० अङ्क	२० मिनेट

Contents

1. Ms word (0.5×2=1 Marks and 1×1=1 Mark)
   a. Creating, saving and opening documents
   b. Typing in Nepali and English
   c. Text formatting (Font, Size, Color, Underline, Italic, Bold, etc.) and paragraph formatting (alignment, indentation, spacing)
   d. Inserting Header, Footer, Page Number, Table, Pictures, Shapes, Hyperlink, Bookmark, Text Box and Symbol
   e. Page Formatting
   f. Security Techniques of Document
   g. Mail merge
2. Electronic Spreadsheet (0.5×2=1 Marks and 1×1=1 Mark)
   a. Organization of Electronic Spreadsheet applications (Cells, Rows, Columns, Worksheet, Workbook and Workspace)
   b. Creating, Opening and Saving Work Book
   c. Editing, Copying, Moving, Deleting Cell Contents
   d. Formatting Cells (Font, Border, Pattern, Alignment, Number, Protection, Margins and text wrap)
   e. Formatting Rows, Column and Sheets
   f. Using Formula with Relative and Absolute Cell Reference
   g. Using Basic Functions (SUM, MAX, MIN, AVERAGE)
3. Presentation System (0.5×2=1 Marks)
   a. Introduction to presentation application
   b. Creating, Opening & Saving Slides
   c. Formatting Slides, Slide design, Inserting header & footer
   d. Slide Show, hyper link
   e. Animation
   f. Inserting Built-in picture, Picture, Table, Chart, Graphs, and Organization Chart etc.
4. Windows basic, Email and Internet (0.5×2=1 Marks)
   a. Introduction to Graphical User Interface
   b. Starting and shutting down Windows
   c. Basic Windows elements: Desktop, Taskbar, My Computer, Recycle Bin etc.
   d. Concept of file, folder, menu, toolbar
   e. Searching files and folders
   f. Internet browsing & searching content in the web
   g. Creating Email ID, Using email and mail client tools

अंग्रेजी र नेपाली Typing Skill Test को लागि निर्देशन

१. नेपाली typing skill test को लागि १५० शब्दको एउटा text दिइनेछ र देहाय अनुसार अङ्क प्रदान गरिनेछ।

शुद्ध शब्द प्रतिमिनेट (Correct words/minute)	पाउने अङ्क
४ भन्दा कम शुद्ध शब्द प्रतिमिनेट वापत	० अङ्क
४ वा सो भन्दा बढी र ७ भन्दा कम शुद्ध शब्द प्रतिमिनेट वापत	०.२५ अङ्क
७ वा सो भन्दा बढी र १० भन्दा कम शुद्ध शब्द प्रतिमिनेट वापत	०.५० अङ्क
१० वा सो भन्दा बढी र १३ भन्दा कम शुद्ध शब्द प्रतिमिनेट वापत	०.७५ अङ्क
१३ वा सो भन्दा बढी र १६ भन्दा कम शुद्ध शब्द प्रतिमिनेट वापत	१.०० अङ्क
१६ वा सो भन्दा बढी र १९ भन्दा कम शुद्ध शब्द प्रतिमिनेट वापत	१.२५ अङ्क
१९ वा सो भन्दा बढी र २२ भन्दा कम शुद्ध शब्द प्रतिमिनेट वापत	१.५० अङ्क
२२ वा सो भन्दा बढी र २५ भन्दा कम शुद्धशब्द प्रतिमिनेट वापत	१.७५ अङ्क
२५ वा सो भन्दा बढी शुद्ध शब्द प्रतिमिनेट वापत	२.०० अङ्क

२. English typing skill test को लागि २०० शब्दको एउटा text दिइनेछ र देहायअनुसार अङ्क प्रदान गरिनेछ।

शुद्ध शब्द प्रतिमिनेट (Correct words/minute)	पाउने अङ्क
४ भन्दा कम शुद्ध शब्द प्रतिमिनेट वापत	० अङ्क
४ वा सो भन्दा बढी र ८ भन्दा कम शुद्ध शब्द प्रतिमिनेट वापत	०.२५ अङ्क
८ वा सो भन्दा बढी र १२ भन्दा कम शुद्ध शब्द प्रतिमिनेट वापत	०.५० अङ्क
१२ वा सो भन्दा बढी र १६ भन्दा कम शुद्ध शब्द प्रतिमिनेट वापत	०.७५ अङ्क
१६ वा सो भन्दा बढी र २० भन्दा कम शुद्ध शब्द प्रतिमिनेट वापत	१.०० अङ्क
२० वा सो भन्दा बढी र २४ भन्दा कम शुद्ध शब्द प्रतिमिनेट वापत	१.२५ अङ्क
२४ वा सो भन्दा बढी र २८ भन्दा कम शुद्ध शब्द प्रतिमिनेट वापत	१.५० अङ्क
२८ वा सो भन्दा बढी र ३२ भन्दा कम शुद्ध शब्द प्रतिमिनेट वापत	१.७५ अङ्क
३२ वा सो भन्दा बढी शुद्ध शब्द प्रतिमिनेट वापत	२.०० अङ्क

३. नेपालीमा दिइएको text लाई अनिवार्य रुपमा युनिकोड (रोमानाइज्ड वा ट्रेडिसनल) मा टाइप गर्नुपर्नेछ।

४. अंग्रेजी र नेपाली typing मा दिइएको text लाई आधारमानी टाइप गरेको text सँग भिडाई परीक्षण गरिनेछ। दिइएको अंग्रेजी वा नेपाली text मा उल्लेखित स्थान बमोजिम परीक्षार्थीहरूले आफ्नो text मा punctuation टाइप नगरेको पाइएमा त्यसको शब्दमा गणना गरिनेछैन। तत्पश्चात, निम्न formula प्रयोग गरी शुद्ध शब्द प्रतिमिनेट (correct words/minute) निकालिनेछ।

Formula: शुद्ध शब्द प्रतिमिनेट (Correct words/minute) = $\frac{(\text{Total words typed} - \text{Wrong words})}{5}$