

द्वितीय पत्र: सेवा सम्बन्धी
खण्ड (क) - ५० अङ्क

1. **Electricity and Power Supply System**

Basic knowledge of single phase & three phase AC supply, DC Rectifiers, Voltage and Current Regulators, Isolation Transformers, Power Transformers, Basic knowledge of solar power systems, solar panels, solar regulators, lead-acid and sealed batteries, Inverters, on-line and off-line UPS, Lightning arresters, basic knowledge of diesel generators, measurements of electric power, relationship between power, voltage and current, Switching Mode Power Supply (SMPS) and Earthing systems

2. **Semiconductor Devices**

Basic knowledge of semiconductor devices: General purpose Diodes, SCR, Tunnel Diodes, Zener Diodes, Bipolar Transistors, Optoelectronics devices, Integrated Circuits, Field Effect Transistors (FET), MOSFET and Microchips. Operational Amplifiers, Inverting and non-inverting amplifiers

3. **Radio Communication**

Frequency bands used in radio communication, conversion from wavelength to frequency and vice versa, propagation of radio waves in various frequency bands, types of antennas used in various frequency bands, coaxial feeders, various types of coaxial connectors used in RF transmissions, calculation of standing wave ratios (SWR), conversion from dBW to Watts, general knowledge of analog and digital signals, amplifiers. Basic theory of radio transmission and radio reception: RF signal oscillator, amplifiers, super heterodyne receivers, types of modulations used in modern communication systems, AM/FM, PCM, TDM, FSK, etc., Aviation radio spectrum management

4. **Hand Tools and their uses**

Identification, specifications, uses and maintenance of commonly used hand tools like screw drivers, pliers, tweezers, tester, wire stripper, krone tool, LAN tester, Earthing tester

5. **Basics of AC and Electrical/Electronic Cables**

Different type of electrical cables and their specifications, Types of wires & cables, Classification of cables, Types of connectors used in electrical and electronic applications, assembly and their classification

6. **Cells and Batteries**

Types of cells, Specifications of cells and batteries, use of hydrometer, Types of electrolytes used in cells and batteries

7. **Soldering & De-soldering**

Different types of soldering guns, related to temperature and wattage, types of tips, Solder materials and their grading, Use of flux and other materials, Selection of a soldering gun for specific requirement, Soldering and De-soldering stations and their specifications

नेपाल नागरिक उड्डयन प्राधिकरण
प्राविधिक सेवा, ईलेक्ट्रोनिक एण्ड टेलिकम्युनिकेशन इन्जिनियरिङ्ग समूह, छैठौँ तह, अधिकृत पदको खुला/आन्तरिक
प्रतियोगितात्मक परीक्षाको पाठ्यक्रम

खण्ड (ख) - ५० अङ्क

8. **Fiber Optic communication**
Introduction to optical fiber as a transmission media, its advantages over other media, properties of optic fiber, testing, losses, types of fiber optic cables and specifications. Encoding of light, Fiber optic joints, splicing, testing and the related equipments/measuring tools, precautions to be taken laying of cables, safety aspects while handling optical cables
9. **Information and Communication Technology (ICT)**
General knowledge of computer hardware and software, internet, intranet and modem. Local and wide area networking, managed and un-managed switches, routers, servers, firewall
10. **Satellite Communications**
Satellite systems, LEO, GEO, MEO, Multiple access, VSAT systems, Satellite navigation. Concept of GNSS and augmentation techniques, Satellite based Surveillance and ADS systems.
11. **CNS/ATM**
Importance of Communication, Navigation and Surveillance (CNS) in Air Traffic Management. General knowledge of NDB, DVOR, DME, PSR, SSR, MSSR, Basic knowledge of Air Traffic Control, FIR, ADC, ACC, APP, AFIS, airport security, airport audio-visual facilities, flight information display system, Met equipment
12. **ICAO**
ICAO CNS/ATM concept, ICAO Annexes 10 Volumes 1-6
13. **Test Equipment**
Hands-on knowledge on analog and digital multimeters, Oscilloscope, AF and RF Generators, frequency counter, Spectrum Analyzer, OTDR, Splicing Machine, Wattmeter, Ground Resistance Tester
14. **Maintenance and Safety Engineering**
Maintenance requirements and objective, Maintenance types : Daily, Regular, Preventive, Corrective, Emergency; Requirement of Flight Checks/ Calibration, Electric shock hazards, Lightning protection and its requirement, Radiation hazards; Concept of Occupational health and safety

द्वितीय पत्रबाट निम्नानुसार प्रश्न सोधिनेछ :

| द्वितीय पत्र (विषयगत) | | | | |
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| विषय | खण्ड | अङ्कभार | छोटो उत्तर | लामो उत्तर |
| सेवा सम्बन्धी | (क) | ५० | २ प्रश्न X ५ अङ्क = १० | ४ प्रश्न X १० अङ्क = ४० |
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| जम्मा | | १०० | ४ प्रश्न X ५ अङ्क = २० | ८ प्रश्न X १० अङ्क = ८० |