Nepal Telecom

Syllabus for Internal Competition for Deputy Manager  (Telecom Level 8 To 9 Tech)

Full Mark: 100
Pass Mark: 40
Time: 3 hours

Section A (Technical)

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Section B (Management)

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Section A Technical  Marks 50

1. **Telecom and related Technologies:**

   Global Trends in telecommunication developments (NGN, Physical & Virtual Networks) and Technological obsolescence, Convergence of services and technologies, Circuit Switching versus Packet Switching, Comparative Advantages.

   Broadband systems, CDMA Wireless Systems, GSM

   VOIP and call bypass technologies, Optical Fiber networks, Copper Optics, Satellite communication systems, Microwave Systems.

2. **Telecommunication Networks, Network Structures and dimensioning:**

   Switching systems: Hierarchies, routing, Hosts and Remotes, Mobile switches, Interfaces, cross connects, ATM, IP switches

   Transmission Systems: - Microwave, optical, satellite, VSATs, SDH, SONET

   Access systems: wire line and wireless: GSM, PCS (personal communication systems), CDMA, 3 G, Number Portability,
Telecom Networks: Switch/routers Network, Transmission networks, Broadband Network, Intelligent Networks, Cellular Networks, Network Topologies: Major (star, mesh, overlay etc), Network Synchronization, Network clocks and their stability

LAN, WAN, MAN, Intranet and Internet, Corporate Networks, WiFi, WiMax
Tele-traffic Engineering basics:-Traffic, traffic Units, routing, resource allocations basics, Grade of service.

3. **Telecom Services:**

   (5 %- 15%)

   Universal Service Obligation (USO) and Universal Access Obligation (UAO), Millennium Development Goals in Telecom Sector: Service Penetrations, Universal Access, Digital Divide and its measures, Figures for SAARC Countries.

   Service demand and supply situation in Nepal and in south Asian regions. Services forecasting methods: statistical, econometric models, Geographical supply disparities and ways to eliminate them.

   Tariff and Billing, Comparative costs of Telecom Services in Nepal vis a vis countries in SAARC Countries.

   Quality of Services (QoS), Key Indicators for service quality from consumer’s perspective, Customer care, Consumer protection.

   Services and their quality benchmarking of NT in SAARC countries.

4. **Operation and Maintenance:**

   (5 % - 10%)

   Network availability, Network Performance Indicators, Development of Efficiency Indicators for Operators, Divisions/Departments and Section/offices, Safety and Maintenance of Telecom Networks, Fault analysis, typical fault rates of network components & Power equipments, Spares dimensioning basis & inventory control.

   Management Information System (MIS): Objectives, Key indicators for Operation & Maintenance.

5. **Power Supply System:**

   (5 % - 10 %)

   Basic power supply system in telecommunication, Basic rectifier principle, Types of rectifiers, Basic Generator principles, Solar Power Systems: solar modules, charge controllers, Switch mode regulators, Battery Technologies: Lead Acid, NiCad, Li-ion Maintenance Free Batteries, Battery Charge Discharge cycles, battery capacities. Power Systems and their dimensioning, Environment Control systems: air-conditioners, humidifiers/dehumidifiers and their dimensioning to control operation and/or life of the network components.

6. **Telecom Development Organizations and Regulators:**

   (3%- 7%)

   **International Agencies:** ITU, APT, WTO etc.

   **Telecom Regulation:** Regulatory objectives, Sector Reform Initiatives in Nepal, Interconnections, Spectrum management and pricing practices,

   **National Regulator:** Nepal Telecom Authority (NTA), its mandate, organization and functioning, its role in sector development.

   **Major National Telecom Operators:** Their services and market shares, comparative strengths and weaknesses, major areas of agreements and disputes with NT.

   NT’s GSM roaming arrangements (in/out bound): countries and operators, SMS Partners.
7. **General Management** (10% - 20%)
   Roles and responsibilities of Senior Manager, Management of time, Problem solving and decision making, Motivation of staff, Communication skills, Interpersonal relation, Management of staff performance, Handling complains and grievances, Appraising performance, Disciplining staff, Management information system, Planning and control systems, Delegation of authority, Productivity management, Quality management, TQM, Change management.

8. **Project Management** (10% - 20%)
   Concept of project planning and management and processes, Recent project planning approaches, Project cycle, Linkages between plans, program and projects, Project feasibility study – demand/need forecasting and analysis, technical analysis and economic analysis, environmental analysis, Project planning matrix- logical framework, project appraisal and screening, Project risk factors and mitigation, Contract negotiation, Project implementation plan (PERT, CPM, Network diagram, Gantt Chart), Basics of procurement of goods, services and works, Project proposal & reporting.

9. **Marketing Management** (5% - 10%)
   Marketing strategies- product/service, pricing & promotion; Customer relation management – concept, roles and functions; Marketing management issues and challenges of NT.

10. **Financial Management** (5% - 10%)
    Financial planning/budgeting, Working capital management, Inventory control management, Material management, Financial audit, Performance audit.

11. **Miscellaneous** (5% - 10%)
    Company Act, Rules and Regulations of NT, Current organization and management issues and challenges facing NT.
1. **Financial Accounting**
   - Accounting Concepts and Principles
   - Accounting Errors and methods of rectification
   - Accounting for shares and debentures
   - Financial Statements of companies- Preparation and presentation
   - Financial Statement analysis and its interpretation

2. **Nepal Accounting Standards**
   - Financial Statement Presentation and Disclosure Requirement (NAS 1)
   - Net Profit or Loss for the period, Fundamental Errors and Changes in Accounting Policies (NAS 2)
   - Cash Flow Statement (NAS 3)
   - Inventories (NAS 4)

3. **Auditing**
   - Internal Audit and External Audit- Concept and need
   - Internal Control and Internal Check
   - Audit Program, Audit File and Audit Working Papers
   - Techniques of Auditing

4. **Accounting Policy of Nepal Telecom**

5. **Financial Rules and Regulation of Nepal Telecom**

6. **Management and Marketing knowledge**
   - Leadership and Motivation
   - Team work and Group dynamic
   - Marketing Management- Coping with competition

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   - Assessment of Income Tax of Income from Business/Profession and Employment
   - Provisions relating to Tax Deduction at Source
   - Exemptions, Partially Allowed Adjustment and Tax Credit in VAT

9. **Companies Act 2063**
   - Chapter 5- Company's Meeting
   - Chapter 21- Miscellaneous (Company Secretary)

10. **Personnel Rules and Regulation of Nepal Telecom**
    - Chapter 8 & 10

    - Chapter 1 & 2
### महत्वपूर्ण जानकारीहरु

क) समूह “क” (Group A) बाट तीनबटा प्रश्नहरू र समूह “ख” (Group B) बाट दुईबटा प्रश्नहरू सोधिनेछन्।

ख) परिशिष्टील सवे प्रश्नहरूको उत्तर दिन पनेछ।

ग) प्रश्नहरू अंग्रेजी तथा नेपाली दुवै भाषामा सोधिनेछ।

घ) परिशिष्टील अंग्रेजी वा नेपाली सवे कूलके एक भाषामा उत्तर दिन पनेछ।

ड) प्रश्नसंग सम्बन्धी पनि, नीति, नियम तथा कानूनहरू (नेपाल इर्ष्यात्तिर्याहरू जस्ता लिमिटेडसंग सम्बन्धीत समेत) परीक्षा मिलिबन्दा तीन महिना अधिकसम्मा भएका संशोधनहरू पनि लागु हुनेछ।

ढ) प्रश्न तथा अंक विभाजन निम्नअनुसार रहनेछ:

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Section A Technical

1. Telecom Technologies

2. Telecommunication Networks:
   Network Components:
   Types, Switch/routers, Backbone links and Gateways, Broadband access Networks, Intelligent Networks, Next Generation Networks (NGN), 3G, and 4G Access Networks, Physical and Virtual Networks, Number Portability, Cellular Networks LAN, WAN, MAN, Intranet and Internet, Corporate Networks, WiFi, WiMax
   Network Topologies: Major (star, mesh, overlay etc), Network Synchronization

Tele-traffic Engineering basics:
Traffic, traffic units, routing, grade of service.
Loss Systems, Delay systems, queuing systems and applicable tools to determine resources,
**Major Suppliers for Network Components, Systems and Services to NT:**
Major technology suppliers to Nepal Telecom
Switching, Transmission and Access technologies, Power systems, Billing software
Computers hardware and software.
Major areas of outsourcing of works and services by NT (construction, transportation, space, training and HRD etc).

3. **Telecom Services**
Modern Trends, Type of services, Universal Service Obligation (USO) and Universal Access Obligation (UAO), Millennium Development Goals in Telecom Sector: Service Penetrations, Universal Access, Digital Divide and its measure: Digital Access Index (DAI) figures for top ten countries and major Asia Pacific Countries, Access Deficits and international practices to address them.
Service demand and supply situation in Nepal and in south Asian and south-east Asian regions.
Services forecasting methods: statistical, econometric models; Geographical supply disparities and ways to eliminate them.
Tariff and Billing, Comparative costs of Telecom Services in Nepal vis a vis countries in Asia Pacific Region
Quality of Services (QoS), Key Indicators for service quality from consumer’s perspective, Customer Care, Consumer Protection: legal aspects and consumer interest forums.
Services and their quality benchmarking of NT in the Asia Pacific Region.

4. **Operation Management**
Network availability, Network Performance Indicators,
Development of Efficiency Indicators for Operators, Divisions/Departments and Section/offices;
Safety and Maintenance of Telecom Networks, Fault analysis, typical fault rates of network components, Spares dimensioning basis, Inventory Management.
Power systems and their dimensioning, Environment Control systems: air-conditioners, humidifiers/dehumidifiers and their dimensioning to control operation and/or life of the network components.

Management Information System (MIS): Objectives, Key indicators

5. **Telecom Development Organizations and Regulators**

**International Agencies:** ITU, APT, WTO etc.

**Telecom Regulation:** Regulatory objectives, Sector Reform Initiatives in Nepal, Interconnections, Spectrum management and pricing practices,

**National Regulator:** Nepal Telecom Authority (NTA), Its mandate, organization and functioning, its capabilities in sector development.

**Other National Telecom Operators:** Their services and market shares, comparative strengths and weaknesses, major areas of agreements and issues with NT.

Major International Operators with whom NT has working relationships, Success stories of Operators. NT’s international partners, GSM roaming arrangements (in/out bound): countries. sms partners.
Section B (Management)  

6. General Management:

Roles and responsibilities of Senior Manager, Management of time, Problem solving and decision making, Leadership, Motivation of staff, Communication skills, Interpersonal relation, Conflict management, Negotiation skills, Management of staff performance, Staff development techniques – Coaching / Counseling/ Mentoring, Handling complains and grievances, Appraising performance, Disciplining staff, Unionism and labor relation management, Management information system, Planning and control systems, Delegation of authority, Productivity management, Quality management, TQM, Change management, Corporate governance, Strategic management.

7. Project Management:

Concept of project planning and management and processes, Recent project planning approaches, Project cycle, Linkages between Plans/ Programs and projects, Project feasibility study – demand/need forecasting and analysis, technical analysis, financial analysis (NPV, ROI, IRR), economic analysis, social analysis, environmental analysis, Project planning matrix- logical framework, project appraisal and screening, Risk and uncertainty analysis and management, Project negotiation, Project organization, Project implementation plan (PERT, CPM, Network diagram, Gantt Chart), Role and responsibilities of a project manager, Procurement and contract management – goods, services and works, Project monitoring & evaluation techniques and Processes monitoring indicators, Project operation & maintenance, Project proposal preparation.

8. Marketing Management

Role of marketing in service industries, marketing strategies – product/service strategies, pricing strategies, place strategies, promotion strategies. Demand /supply forecasting, market survey, pricing decisions, promotion decisions, market leader, market competition, Marketing processes and strategies of NT, Marketing management issues and challenges of NT

9. Financial Management:


10. Miscellaneous:

Company Act, Rules and Regulations of NT', Current organization and management issues and challenges facing NT, Issues related to Telecommunications Policy
1. Financial Accounting
   1.1 Accounting Concepts, Principles and Conventions
   1.2 Accounting Error, its types and methods of rectification
   1.3 Accounting for shares and debentures
   1.4 Financial Statements of Companies- Preparation and presentation
   1.5 Financial Statements Analysis, Interpretation and Predictive Power
   1.6 Reserves, Provisions and Owners' Equity
   1.7 Valuation of Shares, Business and Goodwill

2. Nepal Accounting Standards and Financial Statement Reporting Standards
   2.1 Nepal Accounting Standards
   2.2 Application of NAS and IFRS (INTERNATIONAL FINANCIAL REPORTING STANDARDS)

3. Cost and Management Accounting
   3.1 Concepts, Principles and Scope
   3.2 Application of Management Accounting in Managerial Decision Making
   3.3 Capital Structure (Equity + Deb + Loan)
   3.4 Budgeting and Budgetary Control

4. Auditing
   4.1 Internal Audit and External Audit
   4.2 Internal Control and Internal Check
   4.3 Audit File and Audit Working Notes
   4.4 Techniques of Auditing
   4.5 Audit Planning and Programs
   4.6 Audit and Investigation
   4.7 Nepal Standards on Auditing and its applicability

5. Management and Marketing Knowledge
   5.1 Leadership and Motivation
   5.2 Team Work, Team Building and Group Dynamic
   5.3 Project Management
2. Income Tax Act 2058 and Income Tax Rules **2059**
3. Value Added Tax Act 2052 Value Added Tax Rules **2053**
4. Companies Act 2063
   - Chapter 5 - Company's Meeting
   - Chapter 6 - Board of Director
5. Accounting Policy of Nepal Telecom
6. Financial Rules and Regulation of Nepal Telecom
   - Chapter 2,3,4,5, 6,7 & 9
7. Personnel Rules and Regulation of Nepal Telecom
   - Chapter 3, 8 & 10

**महत्वपूर्ण जानकारीहरू**

1. समूह (क) वाट तिन बटा प्रश्नहरू र समूह (ख) वाट दुईबटा प्रश्नहरू सोधिनेछन् ।
2. प्रश्नहरू अग्रेजी तथा नेपाली दुबे ता कुनै एक भाषामा मा त्रित पनि सोधन सकिनेछ ।
3. परीक्षालाई अग्रेजी ता नेपाली मद्दै ता कुनै एक भाषामा उत्तरदाई दिन सबैनेछन् ।
4. प्रश्नहरूसँग सम्बन्धित एन, नीति, नियम तथा प्रचलित नेपाल कानून (नेपाल दुर्सूचिकरण नियमहरू सम्बन्धित समेत) मा परीक्षा मिति भन्दा तीन महिना अघिसम्मा संशोधन भई कायम रहेका यथवस्था लागू हुनेछ ।
5. परीक्षालाई नयातम ४० प्रतिशत अहुँ प्राप्त गर्न परेछ ।
6. प्रश्न तथा अक्षाभार निम्न अनुसार हुनेछः :

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10/24
3. प्रश्न संख्या (४ वटा) 
प्रश्नहरुको उत्तर दिनु पर्नेछ।

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समूह (ख)

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2. प्रश्न संख्या (४ वटा) 
प्रश्नहरुको उत्तर दिनु पर्नेछ।

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### 1. Financial Accounting

1.1 Accounting Concepts, Principles and Conventions
1.2 Accounting Error, its types and methods of rectification
1.3 Accounting for shares and debentures
1.4 Financial Statements of Companies- Preparation and presentation
1.5 Financial Statements Analysis, Interpretation and Predictive Power

### 2. Nepal Accounting Standards and Financial Statement Reporting Standards

2.1 Nepal Accounting Standards
2.2 Application of NAS and IFRS (INTERNATIONAL FINANCIAL REPORTING STANDARDS)

### 3. Cost and Management Accounting

3.1 Concepts, Principles and Scope
3.2 Application of Management Accounting in Managerial Decision Making
3.3 C-V-P Analyses

### 4. Auditing

4.1 Internal Audit and External Audit
4.2 Internal Control and Internal Check
4.3 Audit File and Audit Working Notes
4.4 Techniques of Auditing
4.5 Audit Planning and Programs
4.6 Audit and Investigation
4.7 Nepal Standards on Auditing and its applicability

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### सेवा सम्बन्धि नोट

समूह (क)

1. **Financial Accounting**
2. **Nepal Accounting Standards and Financial Statement Reporting Standards**
3. **Cost and Management Accounting**
4. **Auditing**
समूह (ख)

ऐन नियम तथा कानून

2. Income Tax Act 2058 and Income Tax Rules 2059
3. Value Added Tax Act 2052 Value Added Tax Rules 2053
5. Companies Act 2063
   • Chapter 5 Company’s Meeting
   • Chapter 6 Board of Director
   • Chapter 21 Miscellaneous (Bonus Share & Company Secretary )
6. Financial Rules and Regulation of Nepal Telecom
   • Chapter 2,3,4,5, 6,7 & 9
7. Personnel Rules and Regulation of Nepal Telecom
   • Chapter 3, 8 & 10
   • Chapter 1, 2 & 5

महत्वपूर्ण जानकारीहरू

१ समूह (क) वाट तिन वटा प्रश्नहरू र समूह (ख) वाट दुईवटा प्रश्नहरू सोधिनेछन् ।
२ प्रश्नहरू अंग्रेजी तथा नेपाली दुवै वा कुनै एक भाषामा मात्र पनि सोधन सकिनेछ ।
३ परिश्लेषणहरूले अंग्रेजी वा नेपाली मध्ये कुनै एक भाषामा उतर दिन सकिनेछन् ।
४ प्रश्नहरूसँग सम्बन्धित ऐन, नीति, नियम तथा प्रचलित नेपाल कानून (नेपाल दुरस्वचार कम्पनी लिमिटेडसँग सम्बन्धित समेत) मा परिश्लेषण मिति भन्दा तीन महिना अधिसम्मा संशोधन भई कायम रहेका व्यवस्था लागू हुनेछ ।
५ परिश्लेषणले न्युनतम ४० प्रतिशत अड़ प्राप्त गर्नु परेछ ।
६ प्रश्न तथा अंकभार निम्न अनुसार हुनेछ ।
प्रश्न संख्या (एक प्रश्न)  
1. (क)  
2. (ख)  
3. (ग)  
4. (घ)

प्रश्न संख्या (दो प्रश्नहरू)  
1. (क)  
2. (ख)  
3. (ग)  
4. (घ)

प्रश्न संख्या (चौथा प्रश्न)  
1. (क)  
2. (ख)  
3. (ग)  
4. (घ)
1. Human Resources Management
   1.1 Concept, Functions and Importance of Human Resources Management in Organizations
   1.2 Strategic Human Resource Planning in 21st Century
   1.3 Job Analysis and its Purposes
   1.4 Personnel Administration
   1.5 Motivation
   1.6 Performance Appraisal System- Types and Uses
   1.7 Rewards Management
   1.8 Handling Employee Grievances –Conflict Management and Negotiation Skill
   1.9 Labor Relation and its Process

2. Organization Behavior
   2.1 Understanding Organization Behaviour
   2.2 Leadership and its Importance, Types of Leadership
   2.3 Decision Making and its Types and Models
   2.4 Effective Communication in Organization

3. Good Governance
4. Participatory Management
5. Public Relation
2. Companies Act 2063
   • Chapter 5 Company's Meeting
   • Chapter 6 Board of Director
   • Chapter 21 Miscellaneous (Bonus Share & Company Secretary)
   • Chapter 3
4. Personnel Rules and Regulation of Nepal Telecom
   • Chapter 2,6,8,10,11 & 12
   • Chapter 1, 2 & 5
6. Bonus Act (Article 7) and Bonus Rules (Article 8)
7. Labour Act 2048(1992)
   • Chapter 6
   • Chapter 9 (63)
   • Chapter 10
8. Trade Union Act 2049(1992)
   Chapter 3 (11,12,13)
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1. **General Management**

1.1 Modern Approaches to Management  
1.2 Managerial Roles and Management Functions  
1.3 Organizational Planning and Control  
1.4 Organizational Decision-Making Process  
1.5 Authority and Responsibility, Delegation Of Authority  
  ➢ Performance Appraisal & Rewards Management Including Appraisal System Of Nepal Telecom  
  ➢ Staff Supervision - Objectives & Importance Of Information Management, Public Relation

2. **Management Information System**

2.1 Information and Decision Making  
2.2 Role and Importance of MIS  
2.3 Management as a Control System  
2.4 Impact of Information System in the Organization and the Society  
2.5 MIS a Tool for Management Process

3. **MARKETING**

3.1 Basics of marketing management  
3.2 Marketing Environment  
3.3 Dealing with Competition  
3.4 Customer Satisfaction- value and Retention  
3.5 Advertising & Promotional Management  
3.6 Pricing Strategies and Market Research  
3.7 Types of Telecommunications Service in Nepal.

**समूह (ख)**
   - Chapter 3,5,6,7,8 &10

   - Chapter 3,4,5,6,7& 8

3. Companies Act 2063
   - Chapter 5 Company's Meeting
   - Chapter 6 Board of Director
   - Chapter 21 Miscellaneous (Bonus Share & Company Secretary )

4. Financial Rules and Regulation of Nepal Telecom
   - Chapter 5, 6 & 9

5. Personnel Rules and Regulation of Nepal Telecom
   - Chapter 2, 8, 10 & 12

   - Chapter 1, 2 & 5

7. Cyber Law and IT Policies of Nepal

8. Commercial Law of Nepal

9. General Knowledge on WTO

महत्वपूर्ण जानकारीहरू

1. समूह (क) बाट टिन बटा प्रश्नहरू र समूह (ख) बाट दुईबटा प्रश्नहरू सोधिनेछन् ।
2. प्रश्नहरू अंग्रेजी तथा नेपाली दुवै वा कुल एक भाषामा मात्र पनि सोध्न सकिनेछ ।
3. परीक्षा पछि अंग्रेजी वा नेपाली मध्ये कुल एक भाषामा उत्तर दिन सकिनेछ ।
4. प्रश्नहरूसंग समवेति ऐन, नीति, नियम तथा प्रचलित नेपाल कानून (नेपाल दुरस्थतार वि.के.णि लिमिटेडसंग समवेति समेत) मा परीक्षा मिलि भन्दा तीन महिना अवगतजम्मा संशोधन भई कायम रहेखा व्यवस्था लागू हुनेछ ।
5. परीक्षा पछि न्युनतम ४० प्रतिशत अघ प्राप्त गर्नु पर्नेछ ।
6. प्रश्न तथा अंकभार निम्न आनुसार हुनेछः
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    (घ) ------------- 5 अंक
Nepal Telecom

Syllabus for Internal Competition Written Examination for Senior Engineer
(Telecom Level 7 To Level 8 Tech)

Full Marks: 100
Time: 3 hours

(Common Subject for Telecom Group)

Section A   Technical   Marks 60

1  Basic Electrical and Electronics  (Weightage 5% to 15%)
Circuit elements, series & parallel circuits, resistance, resistivity, Ohm’s laws, Kirchoff’s laws,
Single phase & three phase circuit, star & delta connections, Measurement of current, voltage,
power, energy, insulation resistance, Primary & Secondary cells, Cells in series & parallel,
Fundamentals of transformers, Generators and Induction motors, Electrical shock hazards,
Earthing and shielding techniques for telecom equipments, Lightning protections.
Diode, Zener diode, LEDs, Transistors, Binary and Hexadecimal Number systems,
combinational logics, K-Maps, Flip-Flop, register, counter clock, shift resistors, buses, power
supplies & voltage regulators, power amplifiers, Oscillator circuits, Half wave rectifier, full
wave rectifier, Bridge rectifier, Logic gates: AND, OR, NOT, NAND, NOR.

2  Telecommunications  (Weightage 15 to 25%)
Difference between analog and digital communications, Basic communications elements,
Signal and noise in communication system, AM, DSB-SC, SSB-SC, PM, FM, Sampling
theorem, PCM/ADPCM, Digital Modulation: ASK/PSK/FSK/QPSK/QAM, Phase locked
loop.

Telecommunication network, Basic external plant, Components and structure of local
telecommunications networks, Aerial and Underground Networks, Different types of Copper
cables and Technical Parameters, Network Planning concept and NT standards, Copper Center,
Types of faults in outside plant, Optical Fiber Access Network System, Optical transmitters and
receivers, splices, connectors & coupling, Fiber Optics Networks.
Transmission media, transformer and hybrid circuit, signal and noise measurements, echo & singing, space/time/frequency/wave length division multiplexing, PDH/SDH, DSL, line codes, Packet, Message and circuit switching, Functions of switching, electronic switching, TS/ST/TST/STS switching, No 5 and No 7 signaling, Erlang, Busy hour, ISDN, BISDN, ATM.

TCP/IP Protocol, OSI layers, Computer Networks, LAN, WAN concept, Basics of C-programming.

Multiple Access Methods: FDMA, TDMA, CDMA; GSM (Global System for Mobile Communications), DECT (Digital European Cordless Telephony), MARTS (Multi Access Radio Telephony System), VHF, UHF, Satellite communications, Earth stations, VSAT (Very Small Aperture Terminal), UMTS (Universal Mobile Telecommunications System), Next generation network, Voice over IP, IP/PSTN Platform, Intelligent Network.

3 Information and Communications Technology Basics (Weightage 3% to 7%)

Computer architecture, Microprocessor fundamentals, Microcomputer systems: Bus structure, Memory systems (main, auxiliary, virtual, cache, I/O devices, parallel and serial interfaces, RS-232 standards, variables, constants, data types, arithmetic expression, arrays, Concept of ROM, RAM., MS-office packages, basic concept on internet and e-mail, Computer Peripheral and flow chart

4 Power Supply System and Battery (Weightage: 15 to 25%)


Operational principles of internal combustion engine and its classification, difference between diesel and petrol engine, components of diesel engine, Coolant system requirements, Components of lubricating system, Oil filters, fuel-injection system, Governor, Fuel Pump, Different types of diesel generators used in Nepal Telecom. Operation and Maintenance and control of diesel generators, Protection Provided for Mains Supply and Generator Supply, Normal and Interrupted Operational Sequences, Different types of Control Panel used in NT and their Various Components.

5. **Maintenance and Safety Engineering** *(Weightage: 3 to 7%)*
