

# NTDCL Approved Content

Sr #	Name of Post & BPS	Proposed Areas Weightages	Course Content for Professional/ Technical Knowledge
1	Sub Station Attendant (BPS-09)	<p><b>General/ Professional/ Technical: (Total 85 Marks)</b></p> <p style="padding-left: 40px;"><b>a) Islamic Studies (10 Marks)</b></p> <p style="padding-left: 40px;"><b>b) Pakistan Studies, General Knowledge/ Current Affairs (15 Marks)</b></p> <p>Professional/ Technical Knowledge as per their qualification and experience given in the advertisement of each category of the posts. <b>(60 Marks)</b></p>	<p><b><u>Job Related Course Content (60 Marks) Must Include:</u></b></p> <ul style="list-style-type: none"> <li>• Computer Applications               <ul style="list-style-type: none"> <li>○ Basics of computers</li> <li>○ Input and Output Devices</li> <li>○ BIT, BYTE, RAM, ROM</li> </ul> </li> <li>• Electric Current &amp; OHM Law               <ul style="list-style-type: none"> <li>○ Conductor, Insulator, semiconductor. Resistance, conductance, electrical current, potential difference. Ohm's Law</li> <li>○ Series and parallel circuits</li> <li>○ Power Factor, Power Triangle</li> <li>○ Kirchhoff's law I - current law. Kirchhoff's law II-voltage law.</li> <li>○ Faraday's Laws of electromagnetic Induction</li> <li>○ Lenz's Law</li> <li>○ Capacitor, capacitance.</li> <li>○ Definition of Alternating current &amp; voltage.</li> <li>○ Working principle of Alternating current generator</li> </ul> </li> <li>• USES AND APPLICATION OF TECHNICAL DRAWING               <ul style="list-style-type: none"> <li>○ Importance of Technical drawing and Techniques/Engineer's language.</li> <li>○ Uses of technical drawing, tools and equipment's.</li> <li>○ Types of drawings and their uses.</li> </ul> </li> <li>• House Wiring.               <ul style="list-style-type: none"> <li>○ Types and sizes of wiring cables according to voltage grade,</li> </ul> </li> </ul>

			<ul style="list-style-type: none"><li>○ core and strands, Insulation.</li><li>○ Wiring accessories and cables current carrying capacity.</li><li>○ Wiring system (PVC and steel conduit, channel and cable wiring, cleat, Batten, casing and cable wiring)</li><li>○ Protection of house wiring</li><li>○ Fuse (rewirable, cartridge, H.R.C)</li><li>○ Miniature circuit breaker</li><li>○ Earthing</li><li>● Electrical Instrumentation<ul style="list-style-type: none"><li>○ CLASSIFICATION OF INSTRUMENTS: Absolute instruments. Secondary instruments. Indicating instruments. Recording instruments. Integrating instruments. Digital instruments. Analog instruments.</li><li>○ ENERGY METER SINGLE PHASE AND THREE PHASE: Types. Construction of single phase Energy meter (induction type).</li><li>○ INSTRUMENT TRANSFORMERS: Types (C.T &amp; P.T). Working and advantages. Theory of C.T &amp; P.T</li></ul></li><li>● SUB-STATION:<ul style="list-style-type: none"><li>○ Equipment installed in Sub-station and its purpose</li></ul></li><li>● GROUNDING AND INSULATION:<ul style="list-style-type: none"><li>○ star Neutral point,</li><li>○ Necessity of grounding.</li></ul></li><li>● AC Machines:<ul style="list-style-type: none"><li>○ Working Principle of Transformer, AC Motor, Synchronous Generator, Synchronous motors</li></ul></li><li>● Basic Electronics:<ul style="list-style-type: none"><li>○ SEMICONDUCTOR DIODES.</li><li>○ PN Junction Diode.</li><li>○ Diode construction, operation and applications.</li><li>○ Half-wave &amp; full wave rectifiers.</li><li>○ Inverters</li><li>○ Photodiode and photo conductive cells.</li></ul></li></ul>
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2	Electrician-II(BPS-09)	<p><b>General/ Professional/ Technical: (Total 85 Marks)</b></p> <p><b>a) Islamic Studies (10 Marks)</b></p> <p><b>b) Pakistan Studies, General Knowledge/ Current Affairs (15 Marks)</b></p> <p>Professional/ Technical Knowledge as per their qualification and experience given in the advertisement of each category of the posts. <b>(60 Marks)</b></p>	<p><b><u>Job Related Course Content (60 Marks) Must Include:</u></b></p> <ul style="list-style-type: none"> <li>• Understand Basic Concepts Of Electricity <ul style="list-style-type: none"> <li>○ conductor, Insulator &amp; semi-conductor.</li> <li>○ Resistance, conductance, electrical current, potential difference and stateits unit.</li> <li>○ Ohm`s law.</li> <li>○ Explain laws of resistance andcalculations.</li> <li>○ effects of temperature on Resistance.</li> <li>○ series and parallel circuits with theirproperties.</li> <li>○ total resistances in series &amp; parallelcircuits.</li> <li>○ division of voltage in series circuits.</li> <li>○ division of current in parallel circuits.</li> </ul> </li> <li>• Electrical Wiring <ul style="list-style-type: none"> <li>○ Wiring basics</li> <li>○ Types and sizes of wiring cables according to voltage grade, core andstrands, Insulation.</li> <li>○ Wiring accessories and cables currentcarrying capacity.</li> <li>○ Uses of technical drawing, tools andequipment`s.</li> <li>○ fuse, miniature circuit breaker.</li> <li>○ List the parts of fuse &amp; M.C.B.</li> <li>○ Compare the advantages &amp; disadvantages of fuse &amp; M.C.B.</li> <li>○ Different wiring tests</li> <li>○ Circuits of basic life appliances likeTube lights, fan, Motors, Pumps,</li> </ul> </li> </ul>

			<p style="text-align: center;">Distribution board</p> <ul style="list-style-type: none"> <li>○ Working and Wiring of UPS</li> <li>● Single Line diagram, Types of drawings and their uses.</li> <li>● Electrical Instrumentation <ul style="list-style-type: none"> <li>○ Errors In Am-Meters And Voltmeters</li> <li>○ Multiplier: Purpose Of Multiplier</li> <li>Classification Of Instruments: Absolute Instruments. Secondary Instruments. Indicating Instruments. Recording Instruments. Integrating Instruments. Digital Instruments. Analog Instruments.</li> <li>○ Energy Meter Single Phase And Three Phase: Types. Construction Of Single Phase Energy Meter (Induction Type). Working Principle And Reading The Scale.</li> <li>○ Instrument Transformers: Types (C.T &amp; P.T). Working And Advantages. Theory Of C.T &amp; P.T</li> <li>○ Motor Circuit, Motor Forward And Reverse Circuit</li> <li>○ Star-Delta Connection</li> </ul> </li> <li>● Understand HT &amp; L.T Power Cables – <ul style="list-style-type: none"> <li>○ Concept Of Cables (Heat Resistant, Fire Retarding, Welding Cables)</li> <li>○ Joint Of Conductors And Power Cables <ul style="list-style-type: none"> <li>● Grounding And Insulation: <ul style="list-style-type: none"> <li>○ Star Neutral Point</li> <li>○ Necessity Of Grounding. <ul style="list-style-type: none"> <li>▪ Solid Grounding.</li> </ul> </li> <li>▪ Resistance Grounding. <ul style="list-style-type: none"> <li>○ Reactance Grounding.</li> </ul> </li> </ul> </li> </ul> </li> </ul> </li> </ul>
3	Crane Operator-II (BPS-09)	<p><b>General/ Professional/ Technical: (Total 85 Marks)</b></p> <p>a) Islamic Studies (10 Marks)  b) Pakistan Studies, General  c) Professional/ Technical</p>	<p><b><u>Job Related Course Content (60 Marks) Must Include:</u></b></p> <ul style="list-style-type: none"> <li>● Crane types and components</li> <li>● Crane setup</li> <li>● Crane safety</li> </ul>

		<p>Knowledge as per their qualification and experience given in the advertisement of each category of the posts. <b>(60 Marks)</b></p>	<ul style="list-style-type: none"> <li>• Hand and Radio signals</li> <li>• Technical accuracy</li> <li>• Emergency stop operation and disconnect</li> <li>• Safe and productive lifting techniques</li> <li>• Crane control operations</li> </ul>
4	Fork Lifter Operator (BPS-09)	<p><b>General/ Professional/ Technical: (Total 85 Marks)</b></p> <p><b>a) Islamic Studies (10 Marks)</b>  <b>b) Pakistan Studies, General Knowledge/ Current Affairs (15 Marks)</b></p> <p>a) Professional/ Technical Knowledge as per their qualification and experience given in the advertisement of each category of the posts. <b>(60 Marks)</b></p>	<p><b><u>Job Related Course Content (60 Marks) Must Include:</u></b></p> <ul style="list-style-type: none"> <li>• Vehicle inspection prior to operation</li> <li>• Setup and equipment prior to lifting and movement</li> <li>• Travelling with or without load</li> <li>• Pallets and stacking</li> <li>• Reporting Maintenance problems</li> </ul> <p>Forklift safety</p>
5	Surveyor (BPS-09)	<p><b>General/ Professional/ Technical: (Total 85 Marks)</b></p> <p><b>a) Islamic Studies (10 Marks)</b>  <b>b) Pakistan Studies, General Knowledge/ Current Affairs (15 Marks)</b></p> <p>Professional/ Technical Knowledge as per their qualification and experience given in the advertisement of each category of the posts. <b>(60 Marks)</b></p>	<p><b><u>Job Related Course Content (60 Marks) Must Include:</u></b></p> <p><b><u>The Course content for this post will be shared soon.</u></b></p>
6	Driver (BPS-08)	<p><b>General/ Professional/ Technical: (Total 85 Marks)</b></p> <p><b>a) Islamic Studies (10 Marks)</b>  <b>b) Pakistan Studies, General</b></p>	<p><b><u>Job Related Course Content (60 Marks) Must Include:</u></b></p> <ul style="list-style-type: none"> <li>• Traffic laws</li> <li>• Routine / periodic maintenance of vehicles</li> <li>• Knowledge of Traffic Signals and signs etc</li> </ul>

		<p>Knowledge/ CurrentAffairs <b>(15 Marks)</b></p> <p>Professional/ Technical Knowledge as per their qualification and experience given in the advertisement of each category of the posts. <b>(60Marks)</b></p>	<ul style="list-style-type: none"> <li>• Motor vehicle inspection</li> <li>• Defensive driving techniques</li> <li>• Knowledge of highways / motorways</li> </ul> <p>Emergency response driving</p>
7	Assistant Sub Station Attendant(BPS-07)	<p><b>General/ Professional/ Technical: (85 Marks)</b></p> <p><b>a) Islamic Studies (10 Marks)</b></p> <p><b>b) Pakistan Studies, General Knowledge/ CurrentAffairs (15 Marks)</b></p> <p>General Paper of Matriculation standard, plusbasic nature of job/ trade related questions for each category of the posts. <b>(60 Marks)</b></p>	<p><b><u>Job Related Course Content (60 Marks) Must Include:</u></b></p> <ul style="list-style-type: none"> <li>• Pakistani and Muslim Scientists</li> <li>• Introduction of Email, Mobile Phone, internet</li> <li>• Concept of Analogue and Digital equipment</li> <li>• Computer and its parts</li> <li>• Semi-Conductor diode introduction and usage</li> <li>• Introduction to Transformer and its parts</li> <li>• Introduction to galvanometer and Avo meter</li> <li>• Introduction to resistance, capacitance, potentialdifference, electric current</li> <li>• Concept of Direct current and Alternating Current and its usage</li> <li>• Different forms of energy</li> <li>• Law of conservation of energy</li> <li>• Conventional methods for production of electricalenergy</li> <li>• Non- Conventional methods for production ofelectrical energy</li> <li>• Units of Work, Energy, resistance, current, voltage, capacitance</li> <li>• Concept of Air and its properties</li> <li>• Basic Concept of Ozone, Global Warming, Greenhousegases, Chloroflora carbon, Pollution and SMOG.</li> <li>• Concepts of Water, its properties and role as universalsolvent.</li> </ul>
8	Assistant Lineman (BPS-07)	<p><b>General/ Professional/ Technical: (85 Marks)</b></p>	<p><b><u>Job Related Course Content (60 Marks) Must Include:</u></b></p> <ul style="list-style-type: none"> <li>• Quadratic Equations, Partial Fractions, Sets and Functions,</li> </ul>

		<p><b>a) Islamic Studies (10 Marks)</b>  <b>b) Pakistan Studies, General Knowledge/ Current Affairs (15 Marks)</b></p> <p>General Paper of Matriculation standard, plus basic nature of job/ trade related questions for each category of the posts. <b>(60 Marks)</b></p>	<p>Trigonometry, Types of Triangles, Matrices and Determinants, Real and Complex Numbers, Ratio and Proportion, Pythagoras Theorem, Area, Volume</p> <ul style="list-style-type: none"> <li>• Types of Physical Quantities, Work and Energy, Joule's Law, Gravitation, Laws of Thermodynamics, Turning Effects of force, Geometrical Optics</li> <li>• Electrostatic Induction, Coulomb's law, Electrostatic field and potential, Volt, Use of Capacitor, Capacitance and its unit, Series and Parallel Combinations.</li> <li>• Resistance and its Unit, Equivalent Resistance in series and parallel combination, Definition of Electric Current, Ohm's law and its limitations, Difference between AC and DC, Live, Neutral and Earth Wires in domestic main supply.</li> <li>• Hazards of electricity (damage insulation, overheating of cables)</li> </ul> <p>Safety measures in household electricity (Fuse, Circuitbreaker, Earthwire)</p>
9	Crane Helper (BPS-07)	<p><b>General/ Professional/ Technical: (85 Marks)</b></p> <p><b>a) Islamic Studies (10 Marks)</b>  <b>b) Pakistan Studies, General Knowledge/ Current Affairs (15 Marks)</b></p> <p>General Paper of Matriculation standard, plus basic nature of job/ trade related questions for each category of the posts. <b>(60 Marks)</b></p>	<p><b><u>Job Related Course Content (60 Marks) Must Include:</u></b></p> <ul style="list-style-type: none"> <li>• Knowledge of different parts of crane</li> <li>• Communication skills</li> <li>• Crane signals</li> </ul>
10	Telephone Operator (BPS-07)	<p><b>General/ Professional/ Technical: (85 Marks)</b></p> <p><b>a) Islamic Studies (10 Marks)</b></p>	<p><b><u>Job Related Course Content (60 Marks) Must Include:</u></b></p> <p>General Paper of Matriculation standard, plus basic nature of job/trade related</p>

		<p><b>b) Pakistan Studies, General Knowledge/ Current Affairs (15 Marks)</b></p> <p>General Paper of Matriculation standard, plus basic nature of job/ trade related questions for each category of the posts. <b>(60 Marks)</b></p>	<p>questions of the posts.</p>
11	Helper (BPS-07)	<p><b>General/ Professional/ Technical: (85 Marks)</b></p> <p>a) Islamic Studies <b>(10 Marks)</b></p> <p>b) Pakistan Studies, General Knowledge/ Current Affairs <b>(15 Marks)</b></p> <p>General Paper of Matriculation standard, plus basic nature of job/ trade related questions for each category of the posts. <b>(60 Marks)</b></p>	<p><b><u>Job Related Course Content (60 Marks) Must Include:</u></b></p> <ul style="list-style-type: none"> <li>• Fundamental of Electricity (Voltage, Current, OHM, Power, Frequency)</li> <li>• Simple Algebraic Formulae</li> <li>• Chemical Formulae of different simple compound of daily life</li> <li>• Introduction of power cable and conductors, its parts and types.</li> <li>• Trigonometry functions</li> <li>• Basic concept of Atom, Matter</li> <li>• Basic concept of Conductor, Insulator, Resistance, Capacitance</li> <li>• Basic concept of Battery.</li> <li>• Series and Parallel combination of Resistance &amp; Capacitance</li> <li>• Basic concept of Transformer and Generator</li> <li>• Concept of Acids and Bases and its pH levels.</li> <li>• Concept of Speed, Velocity, Acceleration and Speed of Light</li> <li>• Concept of Inertia and Momentum</li> <li>• Simple Analytical Questions (Shapes, Sequence, Series) related to Mathematics.</li> </ul>