

ARMOURED VEHICLES NIGAM LIMITED
SYLLABUS FOR TRADE TEST

1. Junior Technician (Electrician):

- i. Must have good working knowledge in operation & maintenance of transformers, HT/LT, Switch gear and protective devices in the substation.
- ii. Working Knowledge on installation & maintenance of HT/LT overhead lines and laying of cables.
- iii. Ability to interpret complicated wiring diagrams & carry out maintenance of AC/DC machines, other electrical equipment, machine tools, furnaces, welding sets & other equipment.
- iv. Ability in winding of AC/DC Machines coils etc. and repairing of commutator. Knowledge of different insulating materials & winding wires.
- v. Knowledge of elementary electronic devices, diodes, transistors etc. and precautions to be taken while testing PCB and electronic/power electronic devices.
- vi. Should be able to connect and test electric meters, furnaces, relays pyrometers, recorders etc., working in medium pressure independently.
- vii. Should be able to cut off and restore power to any plant or Section and to identify/rectify defective circuits.
- viii. Ability to test & set the relays for overload, earth leakage, reverse power etc.
- ix. Ability to operate high tension switch gears in receiving stations & setting of relays for high tension circuits.

2. Junior Technician (Electronic Mechanic):

- i. Must have sufficient knowledge to read electronic circuit diagrams, repair and maintenance of Electronics Instruments, projector, Micro-Phone, electronic Timer, Electrical Instruments and meters.
- ii. Ability to read electrical ladder diagrams, electronic circuit diagrams, logic diagrams and wiring diagrams.
- iii. Ability to read and understand data books and reference manuals of analog and digital electronic devices and components.
- iv. Possess knowledge of thyristor drives, memory devices, integrated circuits.
- v. Ability to trace, trouble shoot, repair and maintain various electronic circuits, Printed Circuit Boards, drive circuits etc.
- vi. Ability to carryout electronic component testing and soldering/de-soldering works.
- vii. Be conversant with the use of various general purpose electronic testing and measuring equipments like oscilloscope, multi-meters, power supply units, IC testers and LCR meters.

3. Junior Technician (Electroplater):

- i. Elementary knowledge of the processes of degreasing and pickling.
- ii. Ability to use scratch brush for polishing of plated jobs.
- iii. Ability to connect parts to electrodes according to instructions.
- iv. Knowledge of the processes of degreasing and pickling different metals and alloys.
- v. Ability to handle different types of plating baths. e.g. Copper, Nickel, Tin etc.
- vi. Knowledge of soldering.
- vii. Should be literate to and capable of keeping records of plating times, read and use instruments such as hydrometers, thermometers, micrometers, voltmeters and ammeters
- viii. Ability to make up and use pickling solutions and plating solutions
- ix. Ability to adjust current and voltages on plating vats and make simple electric connections such as those required for charging accumulators.
- x. Should have knowledge of safety precautions as well as precautions required for ensuring satisfactory plating.

4. Junior Technician (Fitter General):

- i. Ability to read simple blue prints or take measurements, utilising a foot rule and callipers both internal as well as external.
- ii. Ability to carry out simple fitting operations such as filing, chipping, reaming, tapping or screw cutting by hand and taps dies.
- iii. Elementary ability to use simple workshop machinery such as that required for drilling and rough grinding on emery stone.
- iv. Should have elementary working knowledge of Compressors and ability to carry out simple fitting operation as required for routing maintenance of compressors.
- v. Ability to check lubrication and cooling system and detect incorrect working as well as adjust outgoing pressure of compressed air.

- vi. Ability to mark-off complicated contours on jobs requiring planning, drilling, shaping, boring etc. to higher degree of accuracy and ability to read complicated drawings, make his own calculations including trigonometry and to mark off correctly centres on jobs regarding different operations.
 - vii. Ability to use and read Micrometer and Vernier, Height gauge and other suitable instruments normally connected with the trade and to do simple marking out operations including simple calculations in fractions and decimal not involving trigonometry.
 - viii. Ability to scrap bearings including taper bearing and fit spindles or arbours.
 - ix. Ability to scrap small flat surfaces and carryout minor repairs and carryout adjustments to plant or items of machinery with a view to correcting alignment.
 - x. Should have knowledge of various material used in Engg. including an idea of hardening or tempering steels and should be capable of using a smith's hearth for this purpose.
 - xi. Ability to read a drawing and take necessary dimensions direct from various parts of machinery with a view to prepare rough sketches sufficient to enable him to carry out repairs.
 - xii. In addition to these, should be able to carry out other work of similar nature which is not mentioned above.
- 5. Junior Technician (Foundrymen):**
- i. Ability to work to dimensions from simple sketches on from templates supplied.
 - ii. An elementary knowledge of hardening and tempering tools in common use and ability to operate simple power hammers if available.
 - iii. Ability to make simple welds by hand methods.
- 6. Junior Technician (Machinist):**
- i. Ability to satisfactorily operate the machine on which engaged including ability to check by means of simple "go" and "no go" gauges the quality of the outturn with a view to stopping the machine immediately the article produced is beyond the limits specified on the gauges.
 - ii. Should have sufficient idea of the machine on which working to enable periodical lubrication to be carried out.
 - iii. Ability to read pressure gauges and extrude solids and hallows sections independently and ability to read a micrometer
 - iv. General knowledge of driving mechanism and control parts of the extrusion press.
 - v. Ability to read complicated drawings, set on and work on general purpose machines and special purpose machines to the degree of accuracy necessary for the type of machines.
 - vi. Ability to set comparatively complicated jobs in machines using improve wise methods as necessary.
 - vii. Must be fully conversant with use of micro meters, Vernier calipers, outside calipers etc.
 - viii. Ability to carry out any other works of similar nature not mentioned above.
- 7. Junior Technician (Mechanic Machine Tool Maintenance):**
- i. Ability to use a file and a chisel and carry out simple hand operations such as filing, tapping, sawing, screwing and chipping etc. by hand tools to the tolerances considered reasonable for such operations.
 - ii. Should have elementary knowledge of handling machines i.e., stripping and assembling simple machine parts.
- 8. Junior Technician (OMHE at Raw Material Handling Plant):**
- i. Ability to drive trucks with care and to judge safety and weight on the truck. In the case of a petrol truck driver, ability to start and stop the engine as necessary and carry out minor lubrication.
 - ii. Ability to drive any battery or petrol/diesel driven appliances for material handling purposes, with care and to judge safety and movement for handling of such appliances as also ability to start and stop the engine as necessary and to carry out minor lubrication and repairs.
 - iii. Ability to drive cranes with great accuracy, care and judgment.
 - iv. Must have fair knowledge of the process being carried out in the building where he is required to shift material.
 - v. Must be able to detect and rectify the minor defects developing in his vehicles /cranes and its motive power equipment.
 - vi. Should have knowledge of operating steam boilers and engines, ability to drive a motor vehicle for use of petrol or Diesel engine driven cranes.
 - vii. Must have known regulations of safety rules.
 - viii. Must be able to carry out any other work of similar nature.
- 9. Junior Technician (Painter General):**
- i. Should have some knowledge of mixing paints and be able to rough paint boxes, boards, doors, windows or components.
 - ii. Must be literate enough to cut stencils of English/Hindi lettering and figuring.

- iii. Must be able to cut stencils in various types of materials.
- iv. Must be able to carry out the jobs specified for semi-skilled to a higher degree of finish.
- v. Must be able to write notice Boards, sign Boards etc. at any height.
- vi. Must carry his own tools, implements and materials required for a day to day work.
- vii. Any other works which falls within the purview of the trade which has not been indicated/mentioned in the above specifications.

10. Junior Technician (Quality Assurance Assistant):

- i. In the case of tool and gauge viewers should have knowledge of limits and tolerances as laid down in various specifications.
- ii. Ability to use precision measuring instruments and carry out complex calculations independently.
- iii. Ability to make sketches as necessary and to read complicated drawings.
- iv. Knowledge of the various methods of measurement and of adjusting comparative simple instruments like a micrometer or Vernier gauge.
- v. Must have the knowledge of functions of the various parts of machines and be able to carry out tests of bearings, sling surfaces etc, and check the accuracy of the machines. Knowledge of the various speeds is essential.

11. Junior Technician (Rigger):

- i. Should have knowledge in handling and hoisting heavy load including those in inconvenient positions.
- ii. Should have knowledge of the Rigger/Slings work.
- iii. Must have a good physique and active habits and able to work at height.
- iv. Knowledge of the proper use and maintenance of slings, ropes and tackles and cranes and their up keep and ability for undertaking handling, hauling and hoisting of heavy loads.
- v. Should be able to improvise structures to carry lifting tackle.
- vi. Should have working knowledge of the safety regulations applying to the upkeep of all lifting appliances.
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- viii. Should have working knowledge of the safety regulations applying to the upkeep of all lifting appliances.

12. Junior Technician (Welder):

- i. Knowledge of welding rods and fluxes used for various metals.
- ii. Ability to operate, low pressure oxy-acetylene and/or electric welding plant.
- iii. Ability to carry out welding of difficult materials such as aluminium or thin steel sheet.
- iv. Ability to weld simple joints according to instructions.
- v. Knowledge of brazing and soldering.
- vi. Ability to couple Oxygen cylinders in multiple bank.
- vii. Ability to flame out.
- viii. Ability to recognise and identify surface defects on steel and remove them with deseaming equipment.
- ix. A good knowledge of safety precautions to be taken in handling Oxy-Acetylene appliances.

13. Junior Technician (Forger and Heat Treater)

- (i) Must have a good physique and be capable of working in hot sections.
- (ii) Must have knowledge of steam hammer or forging presses.
- (iii) Ability to work to dimensions from forging drawings.
- (iv) Ability to take control of forging furnaces for heating material to required temperature for forging.
- (v) Ability to use tackle in lifting hot steel billets & ingots and handle these during forging.
