

## Mechanic Diesel

Syllabus S.No.	Name of the items	Quantity of DGET norm's
1	Allen Key set of 12 pieces (2mm to 14mm) made venedium steel	(5+1)
2	Caliper inside 15 cm Spring Joint made of HCS	6
3	Calipers outside 15 cm spring Joint made of HCS	6
4	Center Punch 10 mm. Dia. x 100 mm. made of HCS	6
5	Dividers 15 cm Spring Joint made of HCS	6
6	Electrician Screw Driver 250mm un breakeaval cellulose transparent handle & Alloy steel rod	6
7	Hammer ball peen 0.5 kg drop forged steel with tek wood handle	6
8	Hands file 20 cm. Second cut made of HCS	6
9	Philips Screw Driver set of 5 pieces (100 mm to 300 mm) un breakeaval cellulose transparent handle & Alloy steel rod	6
10	Pliers combination 20 cm. with instulated drop forget from chromium vanadium steel induction hardnet jaws fitted with moulded sleeves	6
11	Screw driver 20cm.X 9mm. Blade Unbreakable cellulose acetate Transparent Handle & alloy steek Rod	6
12	Screw driver 30 cm. X 9 mm. Blade Unbreakable cellulose acetate Transparent Handle & alloy steek Rod	6
13	Scriber 15 cm made of high Corbon Steel Nurlod	6
14	Spanner D.E. set of 12 pieces (6mm to 32mm) (open jaw) Drop forged, chromium vanadium steel.	6
15	Spanner, ring set of 12 metric sizes 6 to 32 mm. Drop forged, chromium vanadium steel.	6
16	Spanners socket with speed handle, T-bar, ratchet and universal upto 32 mm set of 28 pieces with box Drop forged, chromium vanadium steel.	6
17	Steel rule 30 cm inch and metric with Matrik & Britiesh Graduation least count 0.5 MM & 1/64 inch made of SS	6
18	Steel tool box with lock and key (folding type) 400x200x150 mm Treepal Decker	6
19	Wire cutter and stripper made of drop forged from corbon steel with instulated handle size 6 inch	6

### **B. Tools Instruments and General Shop outfits**

1	Adjustable spanner (pipe wrench 350 mm) made Drop forged, chromium vanadium steel.	2
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2	Air blow gun with standard accessories comfortable pistol grip, quick easy trigger action & removable nozzle	1
3	Air impact wrench with standard accessories size half inch sq. drive (double loop Clutch)	4
4	Air ratchet with standard accessories specification sq. drive 1/2 inch, capacity bolt size half inch, free speed 160 rpm max torque 50 Foot-LB (68M)	4
5	Allen Key set of 12 pieces (2mm to 14mm) made of vanadium steel	4
6	Ammeter 300A/ 60A DC with external shunt	4
7	Angle plate adjustable 250x150x175 made of close grain CI	1
8	Angle plate size 200x100x200mm made of close grain CI	2
9	Anvil 50 Kgs with Stand made of cast iron	1
10	Auto Electrical test bench- It consists of: <ul style="list-style-type: none"> <li>• Power supply cable</li> <li>• 4 parallel interfaces to the lights and headlights fitted,</li> <li>• vehicle electrical system control unit,</li> <li>• additional brake light,</li> <li>• Wiper motor,</li> <li>• gateway,</li> <li>• 2 earth distribution boxes,</li> <li>• fuse panel,</li> <li>• original wiring harness,</li> <li>• fault switch box with 15 faults</li> </ul> The power is supplied using a normal 12V vehicle battery	1
11	Battery –charger constant voltage constant current type (three station voltage, 12 volt, current per station 12 amp number of station 3 technology smps)	2
12	Belt Tensioner gauge work in all bench drive mode with a 10 pounds specification	1
13	Blow Lamp 1 litre made of brass body	2
14	Caliper inside 15 cm Spring Joint made of HCS	4
15	Calipers outside 15 cm spring Joint made of HCS	4
16	Car Jet washer with standard accessories high pressure valve & nozzles maximum input power 90-500 kw size 1500x785x530 mm	1
17	Chain Pulley Block-3 ton capacity with tripod stand operating chain pulley & hook with load carrying chain up to four meter height	1
18	Chisel 10 cm flat Joint made of HCS	4
19	Chisels cross cut 200 mm X 6mm Joint made of HCS	4
20	Circlip pliers Expanding and contracting type 15cm and 20cm with insulated drop forged from carbon steel induction hardened jaws fitted with molded sleeves.	4
21	Clamps C 100mm	2
22	Clamps C 150mm	2
23	Clamps C 200mm	2

24	Cleaning tray 45x30 cm. made by galvanized sheet thick 18 swg	4
25	Compression testing gauge suitable for diesel Engine with standard accessories easy reading 2-half inch dia meter rubber covered gage fitter colour code quadruple	2
26	Connecting rod alignment fixture	1
27	Copper bit soldering iron 0.25 Kg	4
28	Cylinder bore gauge capacity 20 to 160 mm	4
29	Cylinder liner- Dry & wet liner, press fit & slide fit liner	1 each
30	DC Ohmmeter 0 to 300 Ohms, mid scales at 20 Ohms	2
31	Depth micrometer 0-25mm	4
32	Dial gauge type 1 Gr. A (complete with clamping devices and with magnetic stand)	4
33	Different type of Engine Bearing model	1 set
34	Different type of piston model	1 each
35	Dividers 15 cm Spring	4
36	Drift Punch Copper 15 Cm	4
37	Drill point angle gauge	1
38	Drill twist 1.5 mm to 15 mm (various sizes) by 0.5 mm	4
39	Electric Soldering Iron 230 V 60 watts 230 V 25 watts	2 each
40	Electric testing screw driver	4
41	Engineer's square 15 cm. Blade	4
42	Engineers stethoscope	1
43	Feeler gauge 20 blades (metric)	4
44	File flat 20 cm bastard	4
45	File, half round 20 cm second cut	4
46	File, Square 20 cm second cut	4
47	File, Square 30 cm round	4
48	File, triangular 15 cm second cut	4
49	Files assorted sizes and types including safe edge file (20 Nos)	2 set
50	Flat File 25 cm second cut	4
51	Flat File 35 cm bastard	4
52	Fuel feed pump for Diesel	1
53	Fuel injection pump (Diesel) inline	1
54	Fuel injection pump dismantling tool kit /Universal Vice	1
55	Fuel injection pump VE pump / Distributor fuel rotary pump (DPC) pumps / along with special tools and accessories.	1 each
56	Gloves for Welding (Leather and Asbestos)	5 sets
57	Glow plug tester	2

58	Granite surface plate 1600 x 1000 with stand and cover	1
59	Grease Gun	2
60	Grease Gun heavy duty trolley type 10 kg capacity	1
61	Growler	2
62	Hacksaw frame adjustable 20-30 cm	10
63	Hammer Ball Peen 0.75 Kg	4
64	Hammer Chipping 0.25 Kg	5
65	Hammer copper 1 Kg with handle	4
66	Hammer Mallet	4
67	Hammer Plastic	4
68	Hand operated crimping tool (i) for crimping up to 4mm and (ii) for crimping up to 10mm	2
69	Hand reamers adjustable 10.5 to 11.25 mm, 11.25 to 12.75 mm, 12.75 to 14.25 mm and 14.25 to 15.75 mm	2sets
70	Hand Shear Universal 250mm	2
71	Hand vice – 37 mm	2
72	Hollow Punch set of seven pieces 6mm to 15mm	2 sets each
73	Injector – Multi hole type, Pintle type	4 each
74	Injector cleaning unit	1
75	Injector testing set (Hand tester)	1
76	Insulated Screw driver 20 cm x 9mm blade	4
77	Insulated Screw driver 30 cm x 9mm blade	4
78	Left cut snips 250mm	4
79	Lifting jack screw type 3 ton, 5ton & 20 Ton capacity	1 each
80	Magneto spanner set with 8 spanners	1 set
81	Magnifying glass 75mm	2
82	Marking out table 90X60X90 cm.	1
83	Multimeter digital <b>Technical Specifications:</b> DC Voltage range :200mV, 2V, 20V, 200V, 600V Accuracy :+(0.5% + 4 Digit) DC Current range : 2mA, 200mA, 10A Accuracy :+(1.5% + 3 Digit) AC Voltage range :200V , 600V Accuracy :+(1.2% + 10 Digit) Resistance range :200ohm, 2Kohm, 20Kohm, 200Kohm, 20Mohm Accuracy :+(0.8% + 5 Digit) Input impedance :10Mohm Sampling Rate :3s AC Frequency Response:40 ~ 400Hz Power requirement : Battery 9V (Included) <b>Standard Accessories :</b>	5

	Probes, Batteries, Instruction manual	
84	Oil can 0.5/0.25 liter capacity	4
85	Oil pump for dismantling and assembling.	2
86	Oil Stone 15 cm x 5 cm x 2.5 cm	1
87	<p>Oscilloscope 20MHz</p> <p><b>Features :</b>  DC ~ 20MHz  Dual channel, X Y mode  6" display cathode ray tube, sensitivity triggering up to 1mV/divison  TV synchronous separation circuit to observe stable TV signal  Polarity reversal, CH 1Sync output</p> <p><b>Technical Specifications :</b>  CRT : 6" Rectangular screen with internal graticule,  8 x 10 Div (1Div=1cm)</p> <p>Vertical Deflection  Vertical Operation Mode: CH1, CH2, ADD, ALT, CHOP (CH1, CH2)  Sensitivity : 5mV/div to 5V/div +3%,  1mV/div to 1V/div +5% (x5),10 steps  Rise time : &lt;17.5ns  Input impedance: 1Mohm  Max. Input voltage: 250V (DC+AC peak value) at 1kHz  (250V, DC+AC)</p> <p>Input coupling: AC, DC, GND  Polarity selection: +(CH2 only)  Display mode : 1, 10, X-Y</p> <p>Horizontal Deflection  Sweep time : 0.2micros/div to 0.2s/div  Sweep expansion : x10  Accuracy : 3%</p> <p>Trigger System  Triggering mode: Auto, NORM, TV-V, TV-H  Trigger source: VERT,CH1, LINE, EXT  Sensitivity auto: 20Hz~20MHz(VERT)  Frequency norm: 0.5div INT, 0.5Vp-p EXT  TV-H : At least 1div or 1Vp-p  Input impedance: 1M ohm  X-Y Phase Difference: &lt;3O, DC-50KHz  Calibration waveform: Frequency: 1kHz 20%, Voltage: 0.5V 1%  Power requirement: 220 VAC +10% , 50 Hz  Weight : 8.0Kg Approx.  Dimensions (mm): 310 (L) x370(B) x 130(H)</p> <p>Standard Accessories :  Power cable, Probe - 2Nos., Instruction manual</p>	2

88	Outside micrometer 0 to 25 mm	4
89	Outside micrometer 25 to 50 mm	4
90	Outside micrometer 50 to 75 mm	1
91	Outside micrometer 75 to 100 mm	1
92	Philips Screw Driver set of 5 pieces (100 mm to 300 mm)	2
93	Pipe cutting tool	2
94	Pipe flaring tool	2
95	Piston ring compressor	2
96	Piston Ring expander and remover.	2
97	Piston Ring groove cleaner.	1
98	Pliers combination 20 cm.	2
99	Pliers flat nose 15 cm	2
100	Pliers round nose 15 cm	2
101	Pliers side cutting 15 cm	2
102	Portable electric drill Machine	1
103	Prick Punch 15 cm	4
104	Punch Letter 4mm (Number)	2 set
105	Radiator cut section-cross flow	1
106	Radiator cut section-down flow	1
107	Radiator pressure cap	2
108	Right cut snips 250mm	2
109	Rivet sets snap and Dolly combined 3mm, 4mm, 6mm	2
110	Scraper flat 25 cm	2
111	Scraper half round 25 cm	2
112	Scraper Triangular 25 cm	2
113	Scriber 15 cm	2
114	Scriber with scribing black universal	2
115	Set of stock and dies -Metric	2 sets
116	Shear Tin Man's 450 mm x 600mm	2
117	Sheet Metal Gauge	2
118	Sher Tinmans 300mm	4
119	Soldering Copper Hatchet type 500gms	2
120	Solid Parallels in pairs (Different size) in Metric	2
121	Spanner Clyburn 15 cm	1
122	Spanner D.E. set of 12 pieces (6mm to 32mm)	4
123	Spanner T. flocks for screwing up and up-screwing inaccessible	2
124	Spanner, adjustable 15cm.	2
125	Spanner, ring set of 12 metric sizes 6 to 32 mm.	4
126	Spanners socket with speed handle, T-bar, ratchet and universal upto	2
127	Spark lighter	2
128	Spark plug spanner 14mm x 18mm x Size	2
129	Starter motor axial type, pre-engagement type & Co-axial type	1each

130	Steel measuring tape 10 meter in a case	4
131	Steel rule 15 cm inch and metric	4
132	Steel rule 30 cm inch and metric	4
133	Straight edge gauge 2 ft.	2
134	Straight edge gauge 4 ft.	2
135	Stud extractor set of 3	2 sets
136	Stud remover with socket handle	1
137	Surface gauge with dial test indicator plunger type i.e. 0.01 mm	4
138	<p>Tachometer (Counting type)</p> <p><b>Technical Specification :</b></p> <p>Measuring range :Photo/Laser : 5-99,999 RPM  :Contact : 5-19,999 RPM,  0.05-999.9m/min (0.2-6,560ft/min)</p> <p>Measuring distance: Photo/Laser  : max.2.0 meters</p> <p>Measuring angle:Photo/Laser : 600  :Contact : 1200</p> <p>Resolution :0.1 RPM (&lt; 1000 RPM), 1.0RPM (&gt;1000 RPM)</p> <p>Accuracy : ±0.05% +1 digit</p> <p>Laser output :&lt;1mW, Class II</p> <p>Sampling time: 1 secretary. (over 6 RPM)</p>	1
139	Tandem master cylinder with booster	4
140	Taps and Dies complete sets (5 types)	1 set
141	Taps and wrenches - Metric	2 sets
142	Telescope gauge	4
143	Temperature gauge with sensor 0-100 deg c	2
144	Thermostat	2
145	Thread pitch gauge Metric,	2
146	Timing lighter	2
147	Torque wrenches 5-35 Nm, 12-68 Nm & 50-225 Nm	1 each
148	Trammel 30 cm	2
149	Turbocharger cut sectional view	1
150	Tyre pressure gauge with holding nipple	2
151	Universal puller for removing pulleys, bearings	1
152	V' Block 75 x 38 mm pair with Clamps	2
153	Vacuum gauge to read 0 to 760 mm of Hg.	2
154	Valve Lifter	1
155	Valve spring compressor universal.	1
156	vernier caliper 0-300 mm with least count 0.02mm	4
157	Vice grip pliers	2
158	Water pump for dismantling and assembling	4

159	Wire Gauge (metric)	2
160	Work bench 250 x 120 x 60 cm with 4 vices 12cm Jaw	4

**C. General Installation/ Machinerics**

1	Air conditioned CRDI Vehicle in running condition -LMV	1
2	Arbor press hand operated 2 ton capacity	1
3 A)	<p>Automotive exhaust (gas analyzer Petrol)  Conforms to IS : 14553 - derived from ISO 11614 : 1999</p> <ul style="list-style-type: none"> <li>• Measures smoke opacity of diesel vehicles in % opacity and K value</li> <li>• Measurement principle : Partial flow, optics based on folded geometry</li> <li>• Suitable for free acceleration test</li> <li>• Engine RPM (Battery based) and Engine oil temperature measurement</li> <li>• Operates on 230V AC (or) 12V DC power supply</li> <li>• Portable, Compact &amp; light weight design, suitable for "Road Tests" using vehicle battery</li> <li>• Low &amp; High voltage indication for battery operation</li> <li>• Automatic Zero and Span calibration</li> <li>• Automatic Pressure regulation and moisture separation</li> <li>• Handheld, Menu driven LCD remote control unit</li> <li>• Pass / Fail indication and emission limit in printout</li> <li>• Vehicle no., vehicle specification, operator name and test data in printout</li> <li>• RS232C serial port for PC interface</li> </ul>	1
3 B)	<p><b>Diesel Smoke meter</b></p> <ul style="list-style-type: none"> <li>• Conforms to ISO 3930</li> <li>• NDIR technology</li> <li>• Engine RPM measurement facility</li> <li>• 7 Segment LED display</li> <li>• Automatic condensate discharge</li> <li>• Automatic zero calibration</li> <li>• Digital span calibration</li> <li>• RS232C serial port for PC interface</li> <li>• NOx measurement (Optional)</li> <li>• Engine oil temperature measurement (Optional)</li> <li>• Portable light weight design</li> <li>• DC operation suitable for "Road tests" using vehicle battery</li> <li>• Display of Lambda / AFR / PEF</li> <li>• Petrol / CNG / LPG selection</li> <li>• Indication for Low / High flow</li> <li>• Indication for battery Low / High voltage</li> <li>• Electronic leak check facility</li> <li>• Gas scrubber for cleaning of impure particles</li> <li>• HC residue test</li> </ul>	
4	Bench lever shears 250mm Blade x 3mm Capacity	1





8	Drilling machine bench to drill up to 12mm dia along with accessories	1
9	Dual Magnetization Yoke : AC / HWDC, 230 VAC, 50Hz	1 set
10	Gas Welding Table 1220mm x760mm	2
11	Grinding machine (general purpose) D.E. pedestal with 300 mm dia	1
12	wheels rough and smooth	
13	Heavy Commercial vehicle type (without body on frame)	1
14	Hydraulic jack HI-LIFT type -3 ton capacity, and 5 Ton capacity	1 each
15	Liquid penetrant Inspection kit	1 set
16	Multi Scan Tool with oscilloscope <b>Technical Specification</b> o Android OS, prevailing panel pc configuration o CPU: Dual core 1GHz o Polymer lithium-ion battery, 3000mA o Extended memory card, support 32G Micro SD (TF) card o Storage capacity: 2GB o Internal Memory: 512MB o Screen Size: 7.0 inch o Screen Resolution: 1024 * 600 o Touch Screen: Multi-touch capacitor screen o Cameras: 2 mega rear and 0.3 mega front o Wireless Communication: WIFI, Bluetooth o Working Temperature:-10 C-55 C (14 F to 131 F) o Storage Temperature:-20 C-70 C (-4 F to 158 F)	1
17	Pipe Bending Machine (Hydraulic type) 12mm to 30mm	1
18	Pneumatic rivet gun with standard accessories	2
19	Spring tension tester	1
20	Tin smiths bench folder 600 x 1.6mm	1
21	Trolley type portable air compressor single cylinder with 45 liters capacity Air tank, along with accessories & with working pressure 6.5 kg/sq cm	1
22	Welding plant Oxy-Acetylene complete ( high pressure)	1
23	Welding Transformer ( 150-300 Amps)	1
24	Working Condition of Diesel Engine – CRDI - 4 stroke Engine Assembly with fault simulation board <b>Technical Specifcation</b> Diesel Engine CRDI Type 4 Stroke <b>Setup Consist Of</b> STRUCTURE OF COMMON RAIL DIRECT INJECTION SYSTEM Injection nozzle: Fuel Supply Pump: Fuel Filter: The Rail of Common Rail Injection System:	

	<p>High-pressure Line: Injector: Solenoid Valve Injector:</p> <p><b>Electronic Control Unit:</b> An Engine Control Unit (ECU), also known as Engine Management System (EMS) is an electronic device, fundamentally a computer, that is part of an internal combustion engine, which reads several sensors in the engine and uses the information to control the ignition systems of the engine. This approach allows an engine's operation to be controlled in great detail, allowing greater fuel efficiency, better power and responsiveness, and much lower pollution levels than earlier generations of engines. Because the ECU is dealing with actual measured engine performance from millisecond to millisecond, it can compensate for many variables that traditional systems cannot, such as ambient temperature, humidity, altitude (air density), fuel octane rating, as well as the demands made on it by the driver. In addition, it is able to a large degree to compensate for the gradual wearing of the engine as it ages, which in practice allows it to extend engine life to two or three times that of engines of twenty years ago.</p> <p>.</p> <p><b>FEATURES</b> Compact Design: Modular System: Responsiveness at low revs: Independent Injection Pressure: Lower NOx Emissions: Full Electronic Control: 5 TEST POINTS 8 FAULT SIMULATION POINTS</p>	
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**D. List of consumable:**

1	Battery- SMF	As required
2	Brake fluids	As required
3	Chalk, Prussian blue.	As required
4	Chemical compound for fasteners	As required
5	Diesel	As required

6	Different type gasket material	As required
7	Different type of oil seal	As required
8	Drill Twist (assorted)	As required
9	Emery paper - 36–60 grit , 80–120	As required
10	Engine oil & Engine coolant	As required
11	Gear oils	As required
12	Gloves for Welding (Leather and Asbestos)	5 sets
13	Hacksaw blade (consumable)	As required
14	Hand rubber gloves tested for 5000 V	5 pair
15	Holdings, lamp teakwood boards, plug sockets,	As required
16	Hydrometer	8
17	Lapping abrasives	As required
18	Leather Apron	5
19	Petrol	As required
20	Power steering oil	As required
21	Radiator Coolants	As required
22	Safety glasses	As required
23	Steel wire Brush 50mmx150mm	5

#### **E. Workshop Furniture**

1	Book shelf (glass panel) 6½ ‘ x 3’ x 1½’	As required
2	Computer Chair	1+1
3	Computer Table	1+1
4	Desktop computer and related MS office software	1+1
5	Discussion Table 8’ x 4’ x 2½ ‘	2
6	Fire Extinguishers, first- aid box	As required
7	Instructional Material – NIMI Books/Ref.books	As required
8	Internet connection with all accessories	As required
9	Laser printer	1
10	LCD projector/ LED /LCD TV (42”)	1
11	Multimedia DVD for Automotive application/subjects	As required
12	Online UPS 2KVA	1
13	Stools	21
14	Storage Rack 6½ ‘ x 3’ x 1½’	As required

15	Storage shelf 6½ ' x 3' x 1½'	As required
16	Suitable class room furniture	As required
17	Suitable Work Tables with vices	As required
18	Tool Cabinet - 6½ ' x 3' x 1½'	2
19	Trainees locker 6½ ' x 3' x 1½'	2 Nos. to accommodate 20 Locker's

**TRAINEE'S TOOLS KIT**

1	Draughtsman drawing instrument box	20+1 set
2	Set square celluloid 45° (250 X 1.5 mm)	20+1 set
3	Set square celluloid 30°-60° (250 X 1.5 mm)	20+1 set
4	Mini drafter	20+1 set
5	Drawing board (700mm x500 mm) IS: 1444	20+1 set

**GENERAL MACHINERY SHOP OUTFIT**

1	Draughtsman table	20 Nos.
2	Draughtsman stool	20Nos.