

**PRIVATE SECONDARY EDUCATION AUTHORITY**

**MONITORING OF NORMS AND STANDARDS IN A FACILITY RECKONED AS:**

**DESIGN & TECHNOLOGY WORKSHOP UP TO GRADE 11/13 - Year 2021/2022**

**Subject Appellation and Level:**

- **DESIGN AND TECHNOLOGY (Product Design) – Grades 12 &13 – HSC**  
CIE syllabus code: 9705 .....
- **DESIGN AND TECHNOLOGY – Grades 10 & 11 – SC CIE syllabus code: 6043**
- **DESIGN AND TECHNOLOGY – Up to Grade 9 & 9+EP (the ‘Technology’ component where there is no D&T Junior Workshop) NCF (Compulsory Core)**

Name of School : \_\_\_\_\_ Date of Verification : \_\_\_\_\_

No. of Workshops at school: \_\_\_\_\_ Workshop being monitored: \_\_\_\_\_

Is the facility New / Relocated / Existing / Upgraded ? \_\_\_\_\_

Number of sections and students using this facility:

Grade	Extended Program				Regular							
	7	8	9	9+	7	8	9	10	11	12	13	
No. of Sections												
No. of Students												
No. of Groups												

Educator in Charge: \_\_\_\_\_ Qualifications: \_\_\_\_\_

Specialist Room  
Attendant: \_\_\_\_\_ Qualifications: \_\_\_\_\_

**IMPORTANT CONDITIONS:**

The following conditions should be fulfilled to ensure a reasonable standard:

- The room and floor area provided should be appropriate.
- A minimum score of 75 % should be obtained in each of the four Sections A to D.
- Compulsory items in Section D, highlighted in bold characters, should be provided.
- Record of use of the Workshop should be kept as required.

Minimum requirements for a class of 20 pupils are specified. However, in case of need provision should be made to accommodate up to 4 additional students.

Item	Description	Quantity	Marks per Unit	Marks Item-wise	Existing	Score (for PSEA use only)
<b>A. PHYSICAL FACILITIES</b> weightage 30%						
<b>1. <u>Floor Area of Room</u></b>  <b>*Note 1:</b> For existing Workshops, the previously approved Floor Area shall be accepted and rated pro-rata.  <b>Note 2:</b> As from 2018, all <u>new</u> Workshops at Grades 10 to 13 level should have an adjacent ' <b>Preparation/Store Room</b> '. (see below)	<b>GRADES 10 - 13:</b> A minimum of 60 m <sup>2</sup> required*	60 m <sup>2</sup>	170 mks/m <sup>2</sup>	10 200		
	<b>Conditions of room</b>					
	<b>Ceiling</b>	Plastered	10%	3 000		
	<b>Walls</b>	Plastered & painted	10%	<b>(Marks on conditions pro-rata on area)</b>		
	<b>Flooring</b>	Flat & non-slip	10%			
	<b>Shape</b>	Convenient	10%			
	<b>Set Up</b>	Conducive	10%			
	<b>Cleanliness</b>	Maintained	10%			
	<b>Proper Storage &amp; Classification</b>	Indexing & Accessibility	10%			
	<b>Lighting</b>	Adequate	10%			
	<b>Ventilation</b>	Natural/ Assisted	10%			
<b>Utilities</b>	Water/Gas/ Electricity	10%				
<b>2. <u>Floor Area of Preparation/Store Room</u></b>	A minimum of 15 m <sup>2</sup> required	15m <sup>2</sup>	140 mks/m <sup>2</sup>		2 100	
	<b>Conditions of Store/Preparation Room</b>	Safety		200		
		Organisation		200		
		Accessibility		200		
			Sub-total Sect. A	15 900		

<p><b>3. Furniture and accessories</b></p> <p><b>* Note 3:</b> Re: (ii) 1 Workbench approx. 1.42 X 0.71 m</p> <p><b>**Note 4:</b> Re: (viii) Power Points include those permanently attached to equipment.</p> <p><b>***Note 5:</b> Re: (xi) Drilling Machine, Scroll Saw, Bench Grinder, Table band-saw, strip heater, Mitre saw, etc.</p> <p><b>+Note 6:</b> <b>Conditions</b> Problems identified with the conditions of <b>Furniture and Accessories</b>, if any, shall be evaluated on how far they affect teaching and learning on a scale of 1 to 10 before effecting deductions on marks for conditions. The marks may be totally forfeited in case of even a single grave problem with conditions.</p>	(i) Table (1.25 m x 0.75 m) & chair for teacher	1 set	400	400		
	(ii) Rigid Workbenches* 1m <sup>2</sup> each fitted with: Engineer's vice Woodwork vice Bench-hooks	10 (total 10m <sup>2</sup> )	88	880		
	(iii) Stools	20	24	480		
	(iv) Modelling/ Assembly Table (1m x 2m)	1	320	320		
	(v) Storage cabinets	4	180	720		
	(vi) Whiteboard (2.43 m x 1.06 m)	1	320	320		
	(vii) Wall Clock	1	240	240		
	(viii) PowerPoints**	Total 12	40	480		
	(ix) Tap and sink	1 set	200+200	400		
	(x) Tool racks for tools in frequent use	Provision for min. 50 units	8/unit	400		
	(xi) Rigid*** worktable for equipment	Total surface area 4m <sup>2</sup>	80/m <sup>2</sup>	320		
	(xii) Shelf/rack for displaying models and projects	Storage space 5mx0.3m	380	380		
	<b>Conditions i to xii+</b>			1200		
			<b>Total for section A</b>	<b>24 840</b>		

B. INSTRUCTIONAL TOOLS & RECORDS - (weightage 30%)		Quantity Required	Marks per Unit	Marks Item-wise	Existing	Score (for PSEA use only)		
<b>1. Record of Practical Sessions</b>  <b>NOTE:</b> If school has a D&T Junior Workshop, sessions for Ext. Prg. and Gd 7 to 9 are not reckoned here.	A minimum of 20 practical sessions per class in the academic year spread over all three school terms for Gds. 10 to 13 and 10 for lower Gds.  <i>(Records to be kept class-wise and signed by teacher(s))</i>	20	600	12000	Average for all classes reckoned:  -----	-----		
<b>GRADE</b>	<b>Ext. Prog.</b>	<b>Regular</b>						
	7 8 9 9+	7	8	9	10	11	12	13
Class/Group	A							
	B							
	C							
	D							
	E							
	F							
<b>Total (x2 up to G.9R)</b>								
<b>NOTE: Reckoned pro-rata for the current academic year - max. 20 per class or group on 8.5 months.</b>								
<b>2. Record of Audio Visual Lessons</b>  <b>NOTES:</b> 1. If school has a D&T Junior Workshop, lessons for Ext. Prg. and Grades 7 to 9 are not reckoned here. 2. A/V Room used for these lessons.	A minimum of 10 lessons per class in the academic year spread over all three school terms for Gds. 10 to 13 and 5 for lower Gds.  <i>(Records to be kept in the workshop, class-wise and signed by teacher(s))</i>	10	400	4000	Average for all classes reckoned:  -----	-----		
<b>GRADE</b>	<b>Ext. Prog.</b>	<b>Regular</b>						
	7 8 9 9+	7	8	9	10	11	12	13
Class/Group	A							
	B							
	C							
	D							
	E							
	F							
<b>Total (x2 up to G.9R)</b>								
<b>NOTE: Reckoned pro-rata for the current academic year - max. 10 per class or group on 8.5 months.</b>								

3. Stock Book	Up to date, signed & New items highlighted	1	300	300			
4. Timetable of sessions in the Workshop	Time-Table of practicals (with school seal and year stated)	1 (displayed)	200	200			
<b>5. Teaching and Learning Aids</b>  <b>Note: Item (v) to include:</b> <ul style="list-style-type: none"> <li>- Mechanism</li> <li>- Linkages</li> <li>- Structures</li> <li>- Energy</li> <li>- Electric Circuits</li> <li>- Electronics Circuits</li> <li>- Pneumatics</li> <li>- Hydraulics</li> <li>- Jointing Systems</li> <li>- Finishes</li> <li>- Smart materials</li> <li>- Machining</li> <li>- Castings</li> <li>- Ergonomics</li> <li>- Aesthetics</li> </ul> <b>Note: Item (vi) Materials to include:</b> <ul style="list-style-type: none"> <li>- Softwoods</li> <li>- Hardwoods</li> <li>- Ferrous metals</li> <li>- Non-ferrous me.</li> <li>- Thermoplastics</li> <li>- Thermosets</li> <li>- Composite mtl.</li> <li>- Smart Materials</li> </ul> <b>Note: Multimedia Equipment</b> (PC/Laptop, LCD Projector, Printer) Cannot be provided in the workshop. A/V Room will be used for audio-visual lessons.	(i) Reference Books <i>(Published in the past 3 years)</i>  (ii) Magazines <i>(Published in the past 2 years)</i>  (iii) Wall-charts on Syllabus topics  (iv) Project Models for: <ul style="list-style-type: none"> <li>• Grades 7-9</li> <li>• Grades 10-11</li> <li>• Grades 12-13</li> </ul> (v) 3-D Teaching Models on 15 syllabus topics  (vi) Samples of Materials  (vii) Consumer products for product analysis  (vii) Isometric grid Board – 1 m <sup>2</sup>  (vii) Orthographic Grid board – 1 m <sup>2</sup>  (viii) Drawing equipment: (board) <ul style="list-style-type: none"> <li>• Protractor</li> <li>• Compasses</li> <li>• Ruler</li> <li>• Set Squares – 45<sup>o</sup> and 60<sup>o</sup></li> </ul>	5  10  15  5 5 5  15  15  20  1  1  1  1pair	100  50  60  80 80 80  60  40  100  540  540  400 400 400  460	500  500  900  400 400 400  900  600  1000  540  540  400 400 400  460			
				<b>TOTAL SECTION B</b>	<b>24 840</b>		

Item	Description	Quantity Required	Marks Per Unit	Marks Item-wise	Existing	Score (for PSEA use only)
<b>C. SAFETY ITEMS</b>	<b>WEIGHTAGE 10%</b>					
1) First Aid Kit	Equipped to treat cuts, burns and eye problems	1	1000	1000		
2) Fire Extinguisher	Capacity: 2 L/2kg (serviced on time)	1	1000	1000		
3) Fire Blanket		1	380	380		
4) Emergency Exit (clearly indicated)	Additional door for quick exit in case of emergency	1	1000	1000		
5) Safety Charts (On cutting/grinding processes, use of power tools, machines and electrical appliances)	Min. A <sub>3</sub> size. Clear safety precautions on charts displayed at appropriate places.	5	180	900		
6) a) Main Switch/Circuit Breaker b) ELCB/RCD	Separate for the Technology Workshop	1 1	500 500	500 500		
7) Separate <u>OR</u> Shielded Hot Metal Area	Shields may be portable and made from opaque material to protect students from electric arc, flames and hot metal.	1	1000	1000		
8) Protective Equipment	<ul style="list-style-type: none"> <li>• gloves – rubber and leather</li> <li>• eye goggles</li> <li>• face shield or clear spectacles</li> <li>• respirator mask (polystyrene)</li> <li>• ear muffs &amp; aprons</li> </ul>	5 pairs 5 5 20 5 each	40 40 40 10 40	200 200 200 200 200		
9) Cleaning Items	a) Dust extractor b) Liquid soap c) Brushes d) Brooms	1 250 ml 5 5	500 200 30 30	500 200 150 150		
			<b>Total Section C</b>	<b>8 280</b>		
<b>CAUTION: No student should be allowed to operate any power/gas equipment or hazardous tool except under close teacher supervision and while observing all safety precautions, like wearing appropriate protective equipment.</b>						

D.	<b>EQUIPMENT AND CONSUMABLES - weightage: 30 %</b>					
	<b>EQUIPMENT:</b> <b>ITEMS 1 TO 53 – REQUIRED FOR GRADES 7 to 9 (If using the Workshop)</b> <b>ITEMS 1 TO 108 – REQUIRED FOR GRADES 10/11</b> <b>ITEMS 1 TO 117 – REQUIRED FOR GRADES 12/13</b>					
Item No.	Description	Quantity Required	Marks Per Unit	Marks Item-wise	Existing	Score (For PSEA use only)
1.	<b>Bench-mounted Drilling Machine</b>	<b>1</b>	<b>180</b>	<b>180</b>		
2.	Drilling Machine Vice	1	180	180		
3.	Band saw – small and bench-mounted	1	180	180		
4.	Bradawl	5	24	120		
5.	Coping Saw	2	90	180		
6.	Construction components /Demonstration kits for experiments with basic: a) Linkages b) Mechanisms c) Structures d) Hydraulics e) Pneumatics	2 sets Each - Total 10 sets	60	600		
7.	Construction components for simple Electrical and Electronic Circuits: a) Multi-meter (analogue) b) Multi-meter (digital) c) Resistor – asstd. values d) Capacitor - asstd. values e) Sensors - asstd. values f) Battery – 9 volts g) L.E.D – assorted types h) Transistor	3 3 60 30 12 6 20 20	40 40 2 4 10 20 6 6	120 120 120 120 120 120 120		
8.	De-soldering pump	5	24	120		
9.	Drawing Stencils – assorted types and sizes	5	24	120		
10.	Drills (1 to 13 mm X 0.5 mm) • for wood • for metal	set of 10 sizes set of 10 sizes	12/unit 12/unit	120 120		
11.	Engineer's square	10	12	120		
12.	Electric extension lead + stand	1	120	120		

13.	Files: Flat/Safe Edge • Bastard • Smooth Square Files Round Files Half Round Files Needle Files-assorted sizes	10 10 5 5 5 4 packs	18 18 24 24 24 30	180 180 120 120 120 120		
14.	Folding bars	1 pair	120	120		
15.	G-Clamp (small) (big)	6 6	20 20	120 120		
16.	Glue Gun	3	60	180		
17.	Glue gun stick	20	9	180		
18.	Hand saw • Crosscut • Rip	2 2	60 60	120 120		
19.	Hole Punch – 4 diameters	1	60	60		
20.	Hammers: • Ball pein • Cross pein • Claw	5 5 4	12 12 15	60 60 60		
21.	Hot-wire Cutter	1	120	120		
22.	Hacksaw frames - 300 mm	10	18	180		
23.	Hacksaw blades (all hard+flexible)	12	15	180		
24.	Hand Drill	2	60	120		
25.	Junior Hacksaw	10	18	180		
26.	Junior hacksaw blades pack	10 blades	18	180		
<b>27.</b>	<b>Jigsaw + cutter blades</b>	<b>2</b>	<b>90</b>	<b>180</b>		
28.	Mallets • Carpenter's • Tinman's • Rubber	6 1 1	20 60 60	120 60 60		
29.	Metal Ruler (stainless) – metric – 300mm	10	18	180		
30.	Marking knives	6	30	180		
31.	Marking gauge	6	30	180		
32.	Mitre block	2	90	180		
33.	Orbital sander - portable	1	180	180		
<b>34.</b>	<b>Portable power drill – with variable speed</b>	<b>1</b>	<b>180</b>	<b>180</b>		
35.	Portable cordless power screwdriver	1	180	180		
36.	Pop riveter + nozzles	1	120	120		
37.	Pliers:     Combination Round nose	2 2	60 30	120 60		



38.	Pincers	2	60	120		
39.	Sanding pad	5	24	120		
40.	Screwdriver – Standard	2 sets of 6	15/unit	180		
41.	Screwdriver - Phillips	2 sets of 6	15/unit	180		
42.	Scroll Saw	1	180	180		
43.	Strip Bender	1	120	120		
44.	Scriber	10	18	180		
45.	Sliding bevel	4	15	60		
46.	Soft Soldering Iron 100W for wires & circuits	6	20	120		
	• Cored solder	5 reels	24	120		
	• Stand	6	20	120		
47.	Smoothing planes	5	24	120		
48.	Try Square	10	18	180		
49.	Tenon saw (200 mm)	3	40	120		
	(250 mm)	3	40	120		
50.	Tinman's snips					
	– straight	10	18	180		
	- curved blade	2	30	60		
51.	Trimming Knife (metal cast body)	4	45	180		
52.	Wire Cutter	4	15	60		
53.	Woodworking Chisel –					
	• Bevel Edge	6	30	180		
	• Firmer	4	45	180		
	• Mortise	6	30	180		
			<b>Sub-Total Section D Items 1-53</b>	<b>11 160</b>		
<b>ADDITIONAL EQUIPMENT FOR Gds. 10 &amp; 11</b>						
<b>Item No.</b>	<b>Description</b>	<b>Quantity Required</b>	<b>Marks per Unit</b>	<b>Marks Per Item</b>	<b>Exist- ing</b>	<b>Score (for PSEA use only)</b>
54.	Abra-frames OR Piercing Saw Frames + Blades	1 set	120	120		
55.	Allen keys:					
	Metric	1set	60	60		
	Imperial	1set	60	60		
56.	Adjustable Angular Hacksaw- Metal Mitre Saw	1	180	180		
57.	Angle Grinder (small)	1	180	180		
58.	Blacksmith Anvil – light version OR alternative	1	180	180		
59.	Blowtorch set with gas supply (butane/propane)	1	120	120		

60.	<b>Bench OR Pedestal Grinding Machine</b>	<b>1</b>	<b>120</b>	<b>120</b>		
61.	Bull Nose Planes	2	60	120		
62.	Carpenter's Square	1	60	60		
63.	Centre Drill (Slocomb)	2	60	60		
64.	<b>Conversion Machines:</b> <b>Circular Saw</b> <b>Planer</b> Thicknesser <i>(May be in one combined unit or separate)</i>	<b>1</b> <b>1</b> 1	<b>180</b> <b>180</b> 180	<b>180</b> <b>180</b> 180		
65.	Callipers (Odd Leg)	6	30	180		
66.	Callipers (Vernier) metric	1	180	180		
67.	Centre Punch	6	30	180		
68.	Centre Square	5	12	60		
69.	Corner Cramps	4	15	60		
70.	Countersinking bits: • 90 degrees • 120 degrees	2 2	90 30	180 60		
71.	Drill Gauge – 1 to 13 mm	1	180	180		
72.	<b>Electric Arc Welding Machine with protective equipment – welding mask/face shield, respirator, leather gloves and apron</b>	<b>1</b>	<b>120</b>	<b>120</b>		
		Not rated if protective equipment is not available.				
73.	Engraving Tools	Set of 5	12	60		
74.	Expansive Bit OR Set of Hole Saws – maximum diameter 50mm	2	60	120		
75.	File Cards OR Wire Brushes	2	60	120		
76.	Forstner Bits – asstd. Sizes	6	20	120		
77.	Glass Cutter	1	120	120		
78.	Grinding and Cutting Discs	1 each	90	180		
79.	Hand Vice	1	60	60		
80.	Hand Lever Shear	1	180	180		
81.	Hole Punches – asstd. Sizes	5	12	60		
82.	Metal Plate Bender	1	120	120		
83.	Measuring Tape	6	30	180		
84.	Mole/Vice Grip Pliers	1	180	180		
85.	Mortice Gauge	4	45	180		
86.	Nail Punches	5	24	120		
87.	Oil Stones – combined grades	2	90	180		

88.	Oiling Burettes + lubricating oil	2 (not rated if empty)	90	180		
89.	Pipe Bender – Dia. up to 10mm Dia. 11 to 20mm	1 1	90 90	90 90		
90.	Power Router	1	180	180		
91.	Plane – Jack plane	6	30	180		
92.	Rasps – assorted sizes	12	15	180		
93.	Router Bits	4	45	180		
94.	a) Plastic Dip Coating (Fluidising tank + Blower) b) Vacuum Forming Machine - approx.. 2500W c) Electric Oven with Thermostat – up to 1000 degrees Celsius	1 set 1 1	120 120 120	120 120 120		
95.	Saw Set	1	60	60		
96.	Screwdriver Bits for Power Drill (Standard & Philips)	6 assorted	30	180		
97.	Sharp-edge machine <u>OR</u> waterstone grinding wheel	1	180	180		
98.	Soldering Irons: 300 watts – for tinfoil + Soft Solder & Flux	1 Adequate	60 60	60 60		
99.	Spanners: Open ended Ring Adjustable	1 set of 6 1 set of 6 2 sizes	60 60 30	60 60 60		
100.	Spring Dividers	5	24	120		
101.	Stakes – assorted shapes	5	12	60		
102.	Steel Rules – mm	6	30	180		
103.	Sash Cramps	6	20	120		
104.	Solvent Applicators – syringes	3	40	120		
105.	Spoke Shaves: • Flat • Convex • Concave	2 2 2	30 30 30	60 60 60		
106.	Surform Planes – set of assorted types	Set of 5	24	120		
107.	Thread-Cutting tools – Taps, Dies, Wrenches, Holders –dia. 3 to 12 mm	1set	120	120		
108.	Zip/Flat Bits – asstd. Sizes	Set of 6	30	180		
			<b>Sub-Total Section D Items 1-108</b>	<b>19 320</b>		

<b>ADDITIONAL EQUIPMENT FOR Gds. 12 &amp;13 (Product Design option)</b>						
109.	Buffing/Polishing machine <u>OR</u> alternative with buffing compounds	1	60	60		
110.	Centre Lathe for turning metal with accessories – Centres, Chucks, Steadies, Tool Holders and Tool bits, Faceplates.	1	120	120		
111.	Equipment for GRP Moulding (metal rollers, moulding board, protective equipment, wet laying brushes)	1 set	60	60		
<b>112.</b>	<b>Power mitre saw (chop or drop saw for woodwork)</b>	<b>1</b>	<b>180</b>	<b>180</b>		
113.	Spray Gun and Compressor (light duty)	1	120	120		
114.	Trying Planes	2	60	120		
<b>115.</b>	<b>Wood Turning Lathe with Accessories + tools</b>	<b>1</b>	<b>120</b>	<b>120</b>		
116.	Wood Turning Tools	Set of 6	20	120		
117.	Wooden/Metal Formers - assorted forms	4	15	60		
<b>Sub-Total for Section D - Items 1-117</b>				<b>20 280</b>		
<b>CONSUMABLES IN STOCK</b>		<b>To be reckoned for all levels.</b>				
<b>Item No.</b>	<b>Description</b>	<b>Quantity Required</b>	<b>Marks Per Unit</b>	<b>Marks Item-wise</b>	<b>Exist-ing</b>	<b>Score (for PSEA use only)</b>
118.	Acrylic (Perspex) – 4 mm thick – clear & coloured	2 sheets or equivalent off-cuts	90	180		
119.	Contact adhesive <i>(To be used under strict teacher supervision)</i>	1 gallon	180	180		
120.	Copper/aluminium and Soft Steel wires – asstd. thickness	4 reels asstd.	45	180		
121.	Expanded Polystyrene	10 sheets 10 blocks	12 12	120 120		
122.	Galvanized mild steel sheet (Gauge 22)	6 sheets	30	180		
123.	Masking Tape	4 reels	45	180		
124.	Nails – 1 inch	Adequate	90	180		

125.	MDF boards – 6 to 9 mm	3 sheets or equivalent off-cuts	60	180		
126.	Dowels – asstd. diameters	20 m	9	180		
127.	a) Sand paper b) Emery Paper – (assorted grades)	15 sheets 15 sheets	12 12	180 180		
128.	Screws – self-tapping asst. - brass – asstd.	100 100	1.2 1.2	120 120		
129.	Timber (pine & meranti) planks/ sections already planed and converted.	10 m plank 10 m sect. From each type	18 18	180 180		
130.	Mild steel sections: • round 6-8 mm dia. • flat 3-4 mm thick	10 bars 6 ft. 10 bars 6 ft.	18 18	180 180		
131.	Plywood – 4 mm thick	3 sheets or equivalent off-cuts	60	180		
132.	PVA Glue	1 litre	180	180		
133.	Cascamite powder	2 kg.	60	120		
134.	Coolant for machine work	2 litres	60	120		
135.	Pop rivets – assorted sizes	2 boxes	60	120		
136.	Plastic Coating PVC or Polyethylene Powder	2 kg.	30	60		
137.	Solvents for Joining Acrylic – e.g Dicloromethane	100 ml.	0.6	60		
138.	Welding Spelter Rods	2 kg.	60	120		
			<b>Sub-total Items 118-138</b>	<b>3960</b>		
			<b>Sub- Total Section D Items 1 to 138</b>	<b>24 240</b>		

Contd. on the next page.

**Criteria for Marking Conditions of Equipment & Consumables (Section D)**

		<b>MAXIMUM MARKS (all levels)</b>	<b>RATING ON SCALE OF 1-10</b>	<b>SCORE</b>
1.	Cleaning and greasing of heavy machines (e.g. <i>Bench Drilling Machine; Circular Saw</i> )	100		
2.	Conditions of light power tools (e.g. <i>Portable Sander; Power Drill</i> )	100		
3.	Maintenance of hand cutting tools in regular use (e.g. <i>Woodworking Chisels; Planes; Scribers</i> )	100		
4.	Sharpening of machine cutting tools (e.g. <i>Drills, Lathe tool bits &amp; chisels</i> )	100		
5.	All power tools provided with good electrical cords & fittings.	100		
6.	All heavy machines bolted in place.	100		
	<b>Totals</b>	<b>600</b>		

## MARK SCHEME

SECTION	TOTAL UP TO GRADE 9	ACTUAL MARKS SCORED	TOTAL UP TO GRADE 11	ACTUAL MARKS SCORED	TOTAL UP TO GRADE 13	ACTUAL MARKS SCORED	% SCORE SECTION -WISE
<b>A. PHYSICAL FACILITIES</b>	<b>24 840</b>		<b>24 840</b>		<b>24 840</b>		
<b>B. INSTRUCTIONAL ITEMS &amp; RECORDS</b>	<b>24 840</b>		<b>24 840</b>		<b>24 840</b>		
<b>C. SAFETY ITEMS</b>	<b>8 280</b>		<b>8 280</b>		<b>8 280</b>		
<b>D. EQUIPMENT AND CONSUMABLES</b>	15 120		23 280		24 260		
	+		+		+		
Marks on Conditions for Section D	600		600		600		
	=		=		=		
	15720		23 680		<b>24 840</b>		
<i>Correction factor for weightage of Section D for Up to Grade 9 &amp; 11</i>	<i>X 1.581</i>		<i>X 1.049</i>				
	=		=				
	<b>24 840</b>		<b>24 840</b>				
<b>OVERALL</b>	<b>82 800</b>		<b>82 800</b>		<b>82 800</b>		

**REMARKS AND SHORTCOMINGS**

*(With particular reference to conditions at page 1 and score obtained)*

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Signature of PSEA Supervisor / Senior Supervisor (s)

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Signature of Manager

Date:-----

Date:-----