

## Appendix-I

Sr. No.	Name of the item with Specification	Qty.
1	<p><b>High temperature Electric Muffle Furnace: 1200°C</b></p> <ol style="list-style-type: none"> <li>Furnace Type: <b>Vertical (Top Mounted)</b> type Electric muffle furnace.</li> <li>Maximum Temperature: <b>1200°C</b>.</li> <li>Chamber size: <b>8” x 8”</b> rectangular chamber with approximate <b>20” length</b>, high quality ceramic wool board insulation, <b>stainless steel</b> external body with double walled construction.</li> <li>Temperature measurement: <b>K type</b> thermocouple inserted from the top side inside the melt (one Steel and one ceramic coated).</li> <li>Muffle should be easy to detach.</li> <li>Working temperature: Continuous 6 hours maintain the temperature.</li> <li>Outer body temperature should not exceed 50°C temperature.</li> <li>15 mm diameter hole at bottom (For inert gas supply) and 25 mm diameter hole at top.</li> <li>Dell computer with min. 4 GB RAM and 500GB hard drive.</li> </ol> <p><u>PID controller:</u></p> <ol style="list-style-type: none"> <li><b>Thyristor</b> control with digital microprocessor based PID controller.</li> <li>Size: <b>96 mm x 96 mm</b>.</li> <li><b>Accuracy</b> of atleast 1% and resolution of 0.1°C.</li> <li><b>Temperature vs time profile</b> controller.</li> <li>RS232/RS485 digital communication protocol with software.</li> <li><b>2 programs</b> of 8 steps each. Profile should be programmed independent of each other; each profile should have parameters for linking.</li> <li>Other features to include deviation, hold, auto ramping &amp; power down resume function.</li> <li>Display: 7 segment LED for process variable and SV; PV &amp; SV Display, mode display 4 digital LED.</li> <li>Output: PID + Fuzzy logic feature selectable. One programmable alarm.</li> <li>It should be easy to connect with computer.</li> </ol> <p><b>Accessories</b></p> <ol style="list-style-type: none"> <li>Thermocouple qty: 10 Nos (Five steel and five ceramic coated).</li> <li>Extra muffle with wound heating element: 1 Nos.</li> <li>Warrantee: one year</li> </ol>	01 No.