

## **ANNEXURE A**

### **Technical Specifications for Deep Freezer**

1. Should have Microprocessor control, digital display with an increment of 1°C Temperature Range -50 to -86 Deg C
2. 368ltr capacity Upright for storing 24000 2ml vials, with (2) 1 horsepower Compressors
3. Should have latch and handle for ergonomic handling and one hand operation with padlock capability
4. Durable adjustable Stainless Steel interior shelves with Inner doors.
5. Down-feed evaporator
6. Should have Optimized cascade refrigeration technology
7. Should have High density and effective heat insulation
8. Should provide maximum cooling of the compressor housing
9. Heavy-duty dual wheel swivel locking casters.
10. Automatic voltage compensator responds to high and low voltages
11. Service valves provided to allow easy recovery of refrigerants and field servicing.
12. Front to back airflow with Removable, cleanable air filter
13. Hinged grill swings out for easy access to filter and battery
14. The microprocessor controller must monitor in one degree C increments, with digital display.
15. Must include NON-CFC REFRIGERANTS
16. Battery back-up for the alarm monitoring system
17. European CE and UL certified for electrical safety. A copy of certificate should be attached
18. Should have Malfunction alarms (audible & visual): temperature, power failure, sensor error, voltage, condenser under efficiency, ambient temperature
19. Should have at least following protection functions: password protection, start-up delay protection, voltage protection in case of low or high voltage
20. Warranty: 3 years

### **Table Top Refrigerated Centrifuge**

1. Max speed: more than 17,800 rpm and 30,200 g.
2. Temperature range: -10°C to 40°C
3. The centrifuge must offer swinging bucket, fixed angle and Microplate rotors to meet current and future sample processing needs of the lab.
4. The centrifuge must be capable of running  
Up to 24 x 5ml or 7ml blood collection tubes and 16 x 10ml blood collection tubes in certified sealed conditions.
5. Up to 8 x 50ml or 15 ml disposable conical tubes.
6. Up to 30 spin columns in certified sealed angle rotor.
7. Up to 12 micro tubes in swinging bucket rotor with maximum g-force of 16,438g
8. Must be capable of running at least 6 x 50 ml or 15ml conical tubes in bio-containment certified angle rotor.
9. 4 standard or 2 deep well Microplate, PCR strips and haematocrit capillaries.
10. A swing out rotor capable of spinning samples above 16,000g.
11. Max timer range: 99h 59min, continuous
12. The centrifuge must have direct program buttons, plus several additional programmes accessible via folder, all with alphanumeric program naming.

### **General Specification:**

- Microprocessor controlled system with direct brushless induction drive.
- UL Listed, CE marked, IVD compliant and Certified Bio containment.
- Rotor shall be installed and removed with no tools in less than 5 seconds.
- The buckets and rotor sealing lids must be certified for bio-containment by a 3rd party lab of World-wide recognition.
- Bucket lids must operate in a safe manner without spring clips or metal components.
- The centrifuge must have a low profile (not to exceed 12.2"/31cm) for easy access by end-user
- Warranty: 3 years

### **Accessories Required:**

- Fixed angle rotor for min 24 x 1.5/2ml ml with Max speed: 30,000g or above with auto lock rotor exchange.
- Fixed angle rotor for min 6 x 50 ml conical tubes with Max speed: 12,000g or above with adapters for 6x15 ml conical tubes with auto lock rotor exchange.