
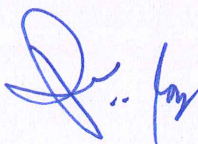
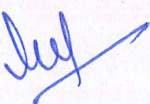
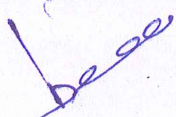


**SPECIFICATION FOR COMPREHENSIVE CARDIOVASCULAR  
EXAMINATION SIMULATOR**

1. State-of-the-art clinical training system for comprehensive cardiovascular examination simulator for bedside clinical examination Teaching and training using ECG data and Stethoscope
2. It must be a life-sized Torso model up to mid-thigh, fixed on a platform trolley with a Large monitoring screen (Min 20") for comprehensive bedside clinical examinations.
3. The system should have heart and breathing sounds recorded from real patients and not computer-generated synthetic sounds,
4. Heart and breath sounds must have natural propagation and sound transitions across the chest wall
5. The system must allow training in observation, auscultation, palpation of heart and breathing sounds as well as cardiac pulses, jugular vein, and apex beat
6. The system must simulate a realistic Respiration cycle to help students understand the respiratory-related phenomenon
7. It should have anatomically correct Auscultation, palpation, and observation sites on a life-sized manikin as follows
  - a) 4 Sites for Heart Sound Auscultation
  - b) 8 sites for arterial pulse palpitation
  - c) 2 sites for Jugular vein observation
  - d) Sites for apex beat palpation
  - e) Sites for breathing sound auscultation
8. It must be suitable for training students in identifying and differentiating heart sounds such as S1, S2, S3, S4, and systolic & diastolic Murmurs.
9. It must have high-quality reproduction of clinical examinations scenarios on a life-size torso manikin body that comprises a minimum of 75 cases of-
  - a) Normal heart simulation - S2 split (-) HR60/72/84, S1 split (+), S2 split (+), S2 wide split, S3 gallop, S4 gallop, pulmonic ejection sound, S3 and S4 gallop, physiological murmur mid systolic click sound,

  
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- b) Heart disease simulation- aortic stenosis, mitral regurgitation, mitral stenosis, aortic regurgitation, hypertrophic cardiomyopathy, mitral steno-regurgitation, pulmonic valvular stenosis, atrial septal defect, ventricular septal defect, Tricuspid regurgitation, Acute mitral regurgitation, Patent ductus arteriosus, Mitral valvular prolapsed, Dilated cardiomyopathy.
  - c) Arrhythmia simulation- Sinus arrhythmia, Sinus tachycardia, Sinus bradycardia, Ventricular premature contraction (1,2,3), Sino-atrial block, Atrio-ventricular block, Atrial fibrillation, Atrial flutter
  - d) ECG arrhythmia simulation - Normal sinus R, Sinus tachycardia, Sinus arrhythmia, APC solitary, APC bigeminy, Ectopic pacemaker, Wondering pacemaker, Coronary sinus R, Sinus bradycardia, SS syndrome, Atrial fibrillation, Atrial flutter, Atrial flutter fib, Atrial flutter, AV block, AV block & Cribb, AV block (digital, mobitz), AV block (3:1&4:1), AV & Cribb, Proxy atrial tachy, AV junc R (svst), AV junc R (pat), AV junc R, AV junc contraction, VVI pacemaker, Atrial pacemaker, Vent pacemaker, AV seq pacemaker, ICRBBB, CRBBB, CLBBB, CLBBB (by ami), wpw syndrome, vpc (solitary, quadrigeminy, trigeminy, bigeminy, couplet), vpc (repetitive, R-on-T type), non-sustained VT, vent (tachycardia, flutter, fibrillation), vent R (sinus cond), accel vent rhythm, agonal rhythm
10. It must simulate a minimum of 50 cases of arrhythmia along with a real-time dynamic ECG Chart for confirmation of findings
  11. It must have a minimum of 30 cases of total patient simulation including cases of normal Heart, Heart Diseases simulation, and arrhythmia simulation with corresponding sounds, pulses, apex beats, and ECG
  12. System must provide an explanation of all simulation/cases and its management to facilitate self-learning and repeated training
  13. It must have a large Touch screen to show ECG, Jugular Venous Pulses (JVP), Carotid Arterial Pulse (CAP), and Apex Cardiogram (ACG)
  14. Each case can be freeze-framed for in-depth learning and should also show the HR, BP, RR, and temperature of the patient.

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15. The cardiology model unit must reproduce heart sounds and murmurs which can be auscultated using a real stethoscope from the Aortic, Pulmonic, Tricuspid, and Mitral areas.
16. It must have bilateral palpable cardiac impulses at Brachial, Radial, Carotid, and femoral arteries linked to the simulated scenario and underlying physiology of the patient.
17. It must have Apex Beat Palpable at RV, LV, with Right ventricular lifting, left ventricular heaving, and left ventricular enlargement
18. It must be possible to arrange/customize the display of the monitor as per training and examination needs
19. It must be supplied with a compression system with computer controls for the real-life experience of arterial palpitation as well as abdominal respiration.
20. It must provide physical finding training in bedside cardiovascular clinical examination skills with a minimum of 75 cases of the total patient, arrhythmia, and ECG simulation.
21. It must give actual training by using actual diagnostic instruments such as a real stethoscope,
22. It must have a facility for repeated practice for learners to differentiate various heart sounds & murmurs using their ears.
23. It must have tracheal and bronchial breath sounds and abdominal movements to facilitate understanding of the respiratory-related phenomenon
24. It must be operated by a wireless controller/tablet with the facility to operate up to five simulators simultaneously with one tablet during the examination and for efficient scenario-based training involving more than one patient and to enable learning with a comparison between related cases.
25. It must be possible to program a playlist of scenarios according to teaching needs
26. The training model must have the dual facility of (A) Hearing the murmurs and other sounds by doctor stethoscope for individual students' experience and (B) the Possibility of playing sounds on a speaker system for group /classroom teaching by faculty.

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27. It must have an external speaker integrated into the trolley for demonstration and large group studies.
28. The complete training system including manikin, compression system, computer, monitor, and speakers should be integrated into a wheeled trolley for easy movements in the department as per training needs. The complete system should be pre-wired and ready to use without any setup time.

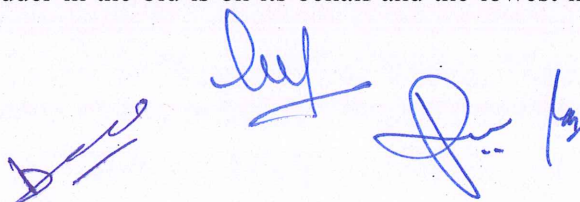
**Conditions for tender:**

1. All accessories should be from the same Original Equipment Manufacturer for the main unit.
2. Instruments must be ISO certified and a copy should be enclosed. (The ISO Certificate must be issued by any organization accredited by the Bureau of Indian Standard or accredited by the international accrediting forum "IAF" (Certificate to be attached).
3. Should be USA FDA and/ or European CE be approved by 4 digits notified body?
4. Other necessary certifications if any required will be provided by the bidder for the smooth functioning of the machine.
5. Installation process should be performed by O.E.M trained service engineers/ service representatives on OEM letterhead or Service Report within 15 days of supply, with the mandatory provision of providing preventive services visit of OEM trained Service Engineer/ Service Representative quarterly per year till the completion of warranty period (i.e., 20 visits for the first 05 years) & further quarterly visits (04 visits/year) year till the completion of CMC period.
6. The equipment should have a Brand name/ Model Number embossed/etched on the equipment.
7. All the technical specifications in the compliance statement must be supported by Original Literature from the firm/ O.E.M with highlighting Numbering & flagging of all technical certificates.
8. Offered Equipment should have a strong Government Installation base.

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9. Offered Equipment should have a Regional Sales Service Centre of the Original Equipment Manufacturer in the region for a 95 % uptime guarantee.
10. For the offered main unit, the essential, optional required consumables'/accessories' shelf life should be declared on the Original Equipment Manufacturer's letterhead.
11. In case of technical snag/failure/breakdown the response time for the inspection should be within 24 hours and repair within 05 days otherwise provide a service machine/ alternate arrangement to be made till the period of recovery of the breakdown of the unit, failing which attracts penal action as per the decision of institute/ hospital.
12. For offered equipment the Training of technical staff and users should be performed by Original Equipment Manufacturer trained Service Engineers at the proper designated place- at bidders' cost.
13. Company should quote their latest model and need to provide an affidavit for the same.
14. As a tendering process the Demonstration of the offered Equipment is Mandatory at hospital/institute premises or other designated places at the bidder's cost.
15. The bidder must comply with the General Financial Rules and their modifications if any issued by the Government of India- 2017.
16. Any bidder from a country that shares a land border with India will be eligible to bid in the tender only if the bidder is registered with the Competent Authority (i.e., Registration certificate issued by the Ministry of Commerce and Industry (Department for Promotion of Industry and Internal Trade- DPIIT after October 2020). If any such bidder is not registered with DPIIT they will be liable for technical disqualification.
17. Principal (OEM) must authorize only one agent to be quoted in the bid otherwise multiple quotes through different agents in the same bid will be canceled.
18. The Bidder and it's OEM both have to submit a notarized affidavit on the Indian Non-Judicial Stamp Paper of Rs.100/- that the bidder has not quoted the price higher than the current financial year and last financial year supplied to any government Institute/ Organization/ reputed Private Organization. OEM also has to submit that the price quoted by the bidder in the bid is on its behalf and the lowest in the current and last



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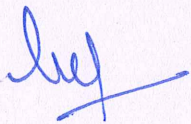
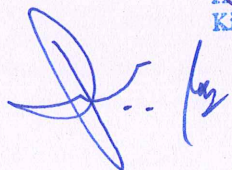
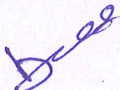
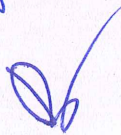
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financial year in the country. Therefore, if at any stage it has been found that the supplier and its OEM have quoted lower rates than those quoted in this bid; the Institute (the purchaser) would be given the benefit of lower rates by the Supplier and any excess payment if any, will become immediately payable to the Institute (the purchaser). If such an affidavit is not submitted, the bid will be outrightly rejected. (Part of technical bid).

19. Guarantee / Warranty Period: Separate offers of Comprehensive Maintenance Contract (CMC on main equipment) and Annual Maintenance Contract (AMC on main equipment) for further 5 years after expiry of 5 years of warranty (i.e., 6<sup>th</sup>, 7<sup>th</sup>, 8<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup> years) in rupees only (and on basis of percentage of price) should be included in a financial bid in the absence of which the offer is liable to be rejected. Payment for CMC/AMC shall be made only after the expiry of the warranty of 5 years, in case the Institute (the purchaser) decides for availing of CMC/AMC services. Contract for CMC/AMC shall be decided on expiry of warranty but rates (not more than 5% inclusive of all taxes for 6<sup>th</sup> to 10<sup>th</sup> year) will be frozen at the price of an issued purchase order before the release of payment by the Institute (the purchaser). However, the Institute (the purchaser) may decide not to enter into any CMC/AMC contract without assigning any reason for the same, which shall be binding upon the bid. Should provide 5-year CMC. CMC cannot be more than 5% of the contract value.
20. System configured application-specific educational video tutorials shall be provided as standard with the system.
21. Details of service outlet in India to render services during 5 years warranty period.
22. The principals must give a certificate if the supplier/vendor is changed during the course of the guarantee/warranty period, the principals would be responsible for the upkeep/maintenance of the quote/supplied equipment, besides honouring all the terms and conditions of CMC/AMC in letter and spirit.

  
  
  
  
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