

**SPECIFICATIONS FOR COMPUTERISED STRESS TEST SYSTEM (TMT  
MACHINE)**

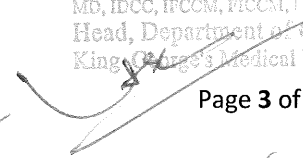
<b><u>System requirements:</u></b>
<ul style="list-style-type: none"> <li>• System should acquire 12 lead ECG simultaneously</li> <li>• System should be able to convert analog ECG signal to Digital signal at the patient end through Wireless Acquisition Module.</li> </ul>
<b><u>Software features:</u></b>
<ul style="list-style-type: none"> <li>• Should be able to record Resting ECG, and Exercise ECG.</li> <li>• In Resting ECG should have Interpretation Software for adults and pediatrics, simultaneous 12- lead ECG analysis program</li> <li>• Should have Interpretation for Athletes</li> <li>• During exercise mode system should display the following parameters on the single screen during exercise mode.</li> <li>• 12 lead raw ECG with average complexes</li> <li>• Real-time ST analysis &amp; ST-HR trends of all 12 leads</li> <li>• Enlarged QRS complex.</li> <li>• Protocol, METS, Max HR, Target HR, Current HR, BP, Stage time, exercise time, treadmill speed &amp; grade</li> <li>• HR detection lead, mains filter status, amplitude.</li> <li>• Should have Duke treadmill score, ST/HR slope, ST/HR loop</li> <li>• Should have QT correction: Bazett, Fredericia, Framingham, or Hodges</li> <li>• Should have Lead selection: Right precordial, left posterior, Frank, Nehb</li> </ul>
<b><u>Should have Computerized measurements:</u></b>
<ul style="list-style-type: none"> <li>• QT Dispersion</li> <li>• Averaged measurements</li> <li>• Should have Vector Analysis</li> <li>• System should have prompt for BP entry</li> <li>• System should have automatic BP measurement Device from the same manufacturer</li> <li>• System should have a customized lead sequence display.</li> <li>• Should have multiple screen formats (6x2, 3x4, 3x 2 etc.)</li> </ul>

Prof. Avinash Agrawal  
 MD, DCC, IFCCM, FICCM, FIACCM, DCCP (USA)  
 Head, Department of Critical care,  
 King George's Medical University, UP, Lko.

<ul style="list-style-type: none"> <li>• System should have facility for Online enable or disable stage-wise printouts</li> </ul>
<ul style="list-style-type: none"> <li>• Software should be able to display full disclosure of all 12 leads</li> </ul>
<ul style="list-style-type: none"> <li>• User should be able to mark the ECG waveform to enter a comment at any stage</li> </ul>
<ul style="list-style-type: none"> <li>• System should provide facility to hold the stage</li> </ul>
<ul style="list-style-type: none"> <li>• Software should have the facility to change the background, grid lines, trace colors</li> </ul>
<ul style="list-style-type: none"> <li>• System software should have a grid at the background of tracing to measure the ST levels manually</li> </ul>
<ul style="list-style-type: none"> <li>• Should have the facility to store &amp; recall the complete test and revalidate the ECG</li> </ul>
<ul style="list-style-type: none"> <li>• System should be able to view &amp; print ST graphs &amp; tables</li> </ul>
<ul style="list-style-type: none"> <li>• System should have the facility to email the test as a pdf file</li> </ul>
<ul style="list-style-type: none"> <li>• System should have shortcut keys for operating important functions.</li> </ul>
<ul style="list-style-type: none"> <li>• Should have an automatic Blood Pressure Measurement Unit which should be integrated with the stress system for measurement during exercise.</li> </ul>
<b>Hardware features:</b>
<ul style="list-style-type: none"> <li>• Should have at least 21" or more Touchscreen display</li> </ul>
<ul style="list-style-type: none"> <li>• Should have Licenced Windows</li> </ul>
<ul style="list-style-type: none"> <li>• Processor: Intel i5-65000 CPU @3.20GHz.</li> </ul>
<ul style="list-style-type: none"> <li>• RAM: 4GB;</li> </ul>
<ul style="list-style-type: none"> <li>• HDD: 500GB;</li> </ul>
<ul style="list-style-type: none"> <li>• Wireless keyboard &amp; Mouse with BT USB dongle</li> </ul>
<ul style="list-style-type: none"> <li>• Should have Black &amp; White Laser Printer</li> </ul>
Wireless Acquisition Module should have the following features
Should be lightweight less than 120 gm inclusive of batteries
Should work with 2 x AA rechargeable batteries and Should have a Charging time of fewer than 200 minutes
Should have a battery capacity of at least 35 hours of continuous display and should get connected with a system with Bluetooth
Should have a safety feature like pairing to the proper data transfer
The system should have the following printout settings:
<ul style="list-style-type: none"> <li>• Print raw rhythm during online stage-wise printouts</li> </ul>
<ul style="list-style-type: none"> <li>• Printouts should be on ordinary pre-printed graph papers through laser or desk jet</li> </ul>

printer
<ul style="list-style-type: none"> <li>• Multiple print formats in landscape or portrait</li> </ul>
<ul style="list-style-type: none"> <li>• Facility to print the complete test report in review mode with a single click of a mouse</li> </ul>
<ul style="list-style-type: none"> <li>• Facility to mark the strip &amp; take the print of marked strips</li> </ul>
<ul style="list-style-type: none"> <li>• Facility to print the ECG of any time</li> </ul>
System should be provided with heavy duty noiseless Treadmill with following specifications –
<ul style="list-style-type: none"> <li>• Should have 2HP AC Motor with self-cooling</li> </ul>
<ul style="list-style-type: none"> <li>• Should have user weight up to 250 kg</li> </ul>
<ul style="list-style-type: none"> <li>• Should have a running area of more than 510 x 1520 mm Should have a Speed Range of 0.8 to 25 kmph</li> </ul>
<ul style="list-style-type: none"> <li>• Should have Grade Range: 0 – 25%</li> </ul>
<ul style="list-style-type: none"> <li>• Should have an Interactive shock cushioned deck for patient comfort &amp; safety Should have an Auto tensioning drive system</li> </ul>
<ul style="list-style-type: none"> <li>• Should be supplied with suitable Servo Stabiliser</li> </ul>
<b><u>Specification of Bi-Phasic Defibrillator</u></b>
<ul style="list-style-type: none"> <li>• Defibrillator should be Bi-Phasic.</li> </ul>
<ul style="list-style-type: none"> <li>• Should have a high-resolution colour TFT display of a minimum 8 inches or more</li> </ul>
<ul style="list-style-type: none"> <li>• Should have energy levels for defibrillation: 2 to 200 joules or more.</li> </ul>
<ul style="list-style-type: none"> <li>• Should have direct trim knob and direct function keys for mute and freeze.</li> </ul>
<ul style="list-style-type: none"> <li>• Should have manual &amp; automated defibrillation modes of operation</li> </ul>
<ul style="list-style-type: none"> <li>• Should be mains and battery operated. The internal battery should provide backup operation up to 2 -3 hours in monitoring mode or at least 100 defibrillation shocks should be delivered from a fully charged battery.</li> </ul>
<ul style="list-style-type: none"> <li>• Facilities of ECG pickup from paddles in case of ECG electrodes are not connected to the Defibrillator.</li> </ul>
<ul style="list-style-type: none"> <li>• Integrated external re-usable adult and pediatric paddles for defibrillation.</li> </ul>
<ul style="list-style-type: none"> <li>• Should have a non-synchronised and synchronized cardioversion.</li> </ul>
<ul style="list-style-type: none"> <li>• System should have 24 hrs graphical as well as tabular memory for all parameters.</li> </ul>
<ul style="list-style-type: none"> <li>• The charging time should be less than 10 seconds for charging up to 200 joules.</li> </ul>




  
**Prof. Avinash Agrawal**  
 MD, IDCC, IFCCM, FICCM, FIACCM, FCCP (USA)  
 Head, Department of Critical care,  
 King George's Medical University, UP, Lko.

<ul style="list-style-type: none"> <li>Should have USB/Data Card storage facility wherein data gets recorded &amp; can be retrieved with the help of software on the computer. The software should be provided as standard scope of supply</li> </ul>
<ul style="list-style-type: none"> <li>Should have an integrated Printer.</li> </ul>
<ul style="list-style-type: none"> <li>Machine should be upgradeable to SpO2, NIBP, Pacer &amp; EtCO2 monitoring</li> </ul>
<ul style="list-style-type: none"> <li>Prices of upgrades should be quoted else the offer will be outrightly rejected.</li> </ul>
<ul style="list-style-type: none"> <li>Should be supplied with the following accessories 5 Lead ECG cable: 2 nos.</li> </ul>
Disposable AED Pads: 25 nos. Paper Pack – 25 nos.
Trolley suitable for mounting the trolley – 1 no.
The Treadmill, Defibrillator, and stress test should be from the same company

#### 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.


MD, IDCC, IFCCM, FICCM, FIACCM, FCCP (USA)  
Head, Department of Critical care,  
King George's Medical University, UP, Lko.



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.



  
Prof. Avinash Agrawal  
MD, IDCC, IFCCM, FICOM, FIACOM, FCCP (USA)  
Head, Department of Critical care,  
King George's Medical University, UP, Lko.

