

Annexure-1

Technical Specifications			
Sl. No.	Parameters	CMTI Requirement	Supplier to Specify
1.0 Machinery Fault Simulator. Quantity: 01 No.			
1.1	Machinery Faults Simulation Features	Balancing (single plane & dual plane), Alignment (parallel, angular, skew), Bearing Defects (Inner race, outer race, cage, ball), Coupling Defects, Eccentric Rotor, Cocked Rotor, Bent Shaft, Journal Bearing.	Essential (Specify)
1.2	Motor	3 Phase, 1/2 HP motor, pre-wired self-aligning mounting system for easy installation/removal	Essential (Specify)
1.3	Drive	1/2 HP variable frequency AC drive with multi-featured front panel programmable controller	Essential (Specify)
1.4	Voltage	230V AC, 50Hz	Essential (Specify)
1.5	Speed Range	0 to 3000rpm	Essential (Specify)
1.6	Tachometer	Built-in tachometer with LCD display and one pulse per revolution analog TTL output for DAQ purposes	Essential (Specify)
1.7	Training Curriculum Manual/Contents	<ul style="list-style-type: none"> • The training curriculum with textbook and basic classroom training in the fundamentals of classic machinery vibration, transducers, monitoring, signal processing, analysis, etc; from beginner to upper intermediate levels. • It is for both hands-on and mathematically oriented, being appropriate for both technicians and engineers. • It should contain wide array of laboratory exercises to be conducted on the MFS for hands on experiential learning & skill development. 	Essential (Specify)
1.8	Eccentric Rotor Kit	Required to study effects of rotor eccentricity, relationship between eccentricity and unbalance, effect of varying mass moment of inertia on vibration amplitude.	Essential (Specify)
1.9	¾" Shaft Bearing Fault kit	One inner race defect bearing, one outer race defect bearing, one with ball defect bearing and one bearing with combination of all the three <ul style="list-style-type: none"> • To Learn waveform and spectra of classic bearing defects. 	Essential (Specify)
1.10	Cocked Rotor Kit	One cocked rotor (0.5-0.6 degree off axis) and one clamp collar <ul style="list-style-type: none"> • To learn the effects of a sheave that has not fitted properly on the shaft. 	Essential (Specify)

		<ul style="list-style-type: none"> •To learn vibration signature of cocked rotor •To learn effect of varying the mass moment of inertia on vibration amplitude. 	
1.11	Centrally Bent Rotor Shaft for Balance Studies Kit	<p>One centrally bent shaft.</p> <ul style="list-style-type: none"> •To study the limitation of attempting to balance rotor mounted on bent shaft. •To study the alignment issues due to bent shaft 	Essential (Specify)
1.12	Coupling Type Set Kit	<p>One gear, one lovejoy, one rubber and one rigid steel coupling.</p> <ul style="list-style-type: none"> •To learn/study the effects of coupling stiffness on rotor dynamics & vibration signature. •To study complexities of machinery shaft misalignment problems 	Essential (Specify)
1.13	Coupling End Bent Rotor Shaft for Alignment Studies Kit	<p>One ¾" shaft coupling end bent.</p> <ul style="list-style-type: none"> •To investigate complicated vibration due to gyroscopic effects •To study the difficulty in attempting to balance an overhung rotor on a bent shaft •To learn alignment issues due to bent shaft. 	Essential (Specify)
1.14	Rolling Bearing Resonance/Critical Study Kit	<p>One ½" shaft, three rotors, two rolling element bearings and one coupling.</p> <ul style="list-style-type: none"> • To study resonance and critical speed phenomenon. • To study damping effects of resonance. • To study the effects of mass and stiffness on resonance frequencies and mode shapes. • To study the beat due to closely spaced modes. 	Essential (Specify)
1.15	Sleeve Bearing Resonance Study Kit	<p>Two customized grease lubricated, Babbitt lined sleeve bearings, two bearing pedestals and number of shims.</p> <ul style="list-style-type: none"> • To study resonance and critical speed phenomena in sleeve bearings 	Essential (Specify)
1.16	Bearing Fault Kit (1")	<p>One inner race defect bearing, one outer race defect bearing, one with ball defect bearing and one bearing with combination of all the three.</p> <ul style="list-style-type: none"> • To learn waveform and spectra of classic bearing defects. • Perform experiments with increasing severity of defects. • To learn about why high resolution vibration spectra is required for diagnosis of bearing defects. 	Essential (Specify)

		<ul style="list-style-type: none"> • To learn how a high amplitude signal can mask adjoining low amplitude signal due to bearing faults. • To learn about signal processing issues such as averaging techniques, leakage, spectral resolution on determining bearing faults. 	
1.17	Bearing Loader (3/4")	<p>One 3/4" bore loader weighing 5 kg and two clamp collars.</p> <ul style="list-style-type: none"> • To investigate bearing radial loading effects. 	Essential (Specify)
1.18	Bearing Loader (1")	<p>One 3/4" bore loader weighing 5 kg and two clamp collars.</p> <ul style="list-style-type: none"> • To investigate bearing radial loading effects. 	Essential (Specify)
1.19	Shaft Bearing Study Kit (1")	<p>Two split bearing housings, Two 1" inside diameter bearings, Two 6" aluminum rotors with 36 threaded holes. One 1" diameter Shaft and one coupling.</p> <ul style="list-style-type: none"> • To study fault frequencies away from multiples of rotational speed. • The standard 3/4" shaft should exhibit fault frequencies close to multiples of rotational speed, requiring high resolution spectrum to identify the bearing defects. • To identify the bearing fault frequencies in the presence of multiples of rotating frequency without high resolution spectrum. • To learn & understand the signal processing issues such as averaging, spectral resolution, leakage • To perform experiments with increasing severity defects 	Essential (Specify)
1.20	Cocked Bearing Housing	<p>One cocked bearing housing</p> <ul style="list-style-type: none"> • To study and recognize the signature of a cocked bearing due to improper seating or improper installation. 	Essential (Specify)
1.21	Shaft Sleeve Bearing Kit (3/4")	<p>Two customized grease lubricated, Babbitt lined sleeve bearings, two bearing pedestals and different plastic shims.</p> <ul style="list-style-type: none"> • To investigate waveform and spectral recognition of worn or loose fitting bearings • To modify the clearance of the split bearings with plastic shims • To perform shaft orbital analysis. 	Essential (Specify)
1.22	Operating Humidity of the Motor	20 to 75% RH, non condensing	Specify operating humidity range

1.23	Operating Temperature Range of the Motor	+10°C to +50°C	Specify the operating temperature range
1.24	Ingress Protection (IP) rating of the Motor	IP 40	Essential (Specify)
1.25	Sound Pressure Level of the Motor	≤70 dBA at a distance of 1m	Essential (Specify).
1.26	Sound Power Level of the Motor	≤80 dBA	Essential (Specify)
1.27	Machinery Fault Simulator Motor Compliance to CE & UL Certification	Required	Essential (Specify)
1.28	Machinery Fault Simulator VFD, Tach Probe Compliance to CE Certification	Required	Essential (Specify)
1.29	Safety Cover	Impact resistant clear safety covers with interlock.	Essential (Specify)
1.30	Alignment Feature	Alignment system with calibrated reference dials and jack bolts	Essential (Specify)
1.31	Bearing Housing Type	Split bracket bearing housings with features for span length reconfiguration.	Essential (Specify)
1.32	Balance Weight Kit	Required	Essential. Specify the different balancing weight ranges and quantity in the kit
1.33	Foundation Base	Die Cast Aluminum Base, Base Stiffener and rubber isolators	Essential (Specify)
1.34	BNC Connectors Panel	16 BNC connector panel mounted to the base plate for connection to DAQ	Essential (Specify)
1.35	Rotors	Two 6" aluminum rotors with 36 threaded holes at 10 deg intervals for adding unbalance.	Essential (Specify)
1.36	Rotor Base	15" long, completely movable using jack bolts for easy horizontal misalignment and standard shims for vertical misalignment. Pinned for easy realignment	Essential (Specify)

2.0 DSP Based Real Time Noise and Vibration Analyzer & Analysis Software's. Quantity: 1 Set.

2.1	No of Input channels	4 input channels and upgradable to 8 channels	Essential (Specify)
2.2	Input Signal Type/Coupling	AC/DC/ICP/ICP+TEDS/Float	Essential (Specify)
2.3	Input Voltage Range	± 40V for individual input channel.	Essential (Specify)
2.4	Input Connector Type	BNC	Essential (Specify)
2.5	ICP Power Supply	1mA to18mA	Specify
2.6	Ingress Protection	IP40 or better	Specify
2.7	Phase Match	± 0.02° @ 20 kHz or better	Essential (Specify)
2.8	Amplitude Match	± 0.010dB @ 20kHz or better	Essential (Specify)
2.9	ADC	24 bits for each individual channel	Essential (Specify)
2.10	Anti aliasing Filter	Required	Specify the Filter Type, Slope in

			dB/Octave & Pass Band Ripple in dB.
2.11	Dynamic Range	140 dB or better for each individual channel	Essential (Specify)
2.12	Internal Memory	256GB	Specify
2.13	External Trigger Channel	Required	Essential (Specify)
2.14	Trigger Channel Input Range	$\pm 10V$	Essential (Specify)
	Tacho Resolution	<160ns or better	Specify
2.15	Sampling Frequency	102.4 kS/s for individual channel	Essential (Specify)
2.16	Power Supply (Indian)	AC 100-240 Volts	Essential (Specify)
2.17	Interfaces	Wi-Fi 802.11 a, b, g, n, a/c – 100 Mb/s Ethernet-USB C	Essential (Specify)
2.18	CAN	2.0, 16ch, 125kb/s, 500kb/s & 1Mb/s	Essential (Specify)
2.19	GPS	10Hz, Glonass, Beidu, Gallileo	Essential (Specify)
2.20	Headphone	Stereo Jack, real time input's playback	Essential (Specify)
2.21	Battery	9000mAh/USB-C power bank	Essential (Specify)
2.22	Battery operating time or run time	>6 hours with all types of inputs (recording, FFT measurements...) on 4 channels	Specify
2.23	Noise and Vibration Analysis Software's with perpetual licenses (Professional Version).	FFT Analysis, Single & Dual Plane Dynamic Balancing, Frequency Response Function (FRF), Coherence, Water fall diagram, Time Domain Analysis, Time Domain Data Recording.	Essential (Specify). (in addition to these analysis software's, the supplier can specify extra analysis software's)
2.24	Different frequency bandwidth FFT analysis for each channel in real time	Real time analysis of signals in two different frequency bandwidths for each channel and also during the post processing.	Essential (Specify)
2.25	Water Fall Display	3D narrow band, color spectrogram, X/Y, Y/ref, order and frequency extraction views. Waterfall slices 2-10000 or more.	Essential (Specify)
2.26	Auto Ranging of Input Signal.	Required	Essential (Specify)
2.27	Time Domain Analysis	Time Views & Extractions-Overview, Signal envelop: Min/Max line Statistical Values: DC, RMS, Min, Max, Peak, Peak to Peak, Crest Factor, Skewness, Kurtosis.	Essential. (in addition to these parameters, the supplier can specify the other parameters)
2.28	View Meter Display	Digital display of RPM, DC, Max, Min, Order both magnitude & phase, Alarm levels.	Specify
2.29	Data Export Format	uff, txt, sdf, mat. wav. Atfx. Excel	Essential (Specify)
2.30	Overlapping of spectrum	Required	Essential (Specify)
2.31	OS compatibility for the Analysis Software's	Windows 10 or Windows 11 Professional.	Essential (Specify)
2.32	Multi Channel Multi Analysis Feature	All analysis modes can run simultaneously on any channels	Essential (Specify)
2.33	Frequency Bandwidth	0-40kHz for each individual channel. Flexibility to set/select different frequency bandwidth.	Essential (Specify)

2.34	Number of Lines and Resolution	25001 lines max for the selected frequency bandwidths. Resolution 1.56Hz for 40kHz bandwidth. 391mHz for 10kHz bandwidth.	Essential (Specify)
2.35	Signal to Noise Ratio	With 50 Ω terminators \pm 10V, 40kHz bandwidth: >100dB, spurious lines <-115 dB full scale. \pm 10V, 20kHz bandwidth: >104dB, spurious lines <-125 dB full scale.	Essential (Specify)
2.36	Windows	Force and response, Hanning, Hamming, Kaiser Bessel, flat-top, uniform	Essential. (in addition to these windows, the supplier can specify the other windows)
2.37	Averaging	Domain: Time & Spectral, FDSA domain averaging, Type: Linear, Exponential, Peak Hold, Ref Peak Hold averaging.	Essential (Specify) (in addition to these averaging, the supplier can specify the other averaging domain/type)
2.38	FFT Zoom	Magnification factor 2 to 128 in steps of 2. Selectable min, max and center frequencies on the spectrum.	Essential (Specify)
2.39	No of Averages	0-10000 or more	Essential (Specify)
2.40	Wi-Fi distance	25 meters or more	Essential (Specify)
2.41	Engineering Units	μ m/sec, mm/sec, cm/sec, m/sec, μ m, mm, cm, meter, μ m/sec ² , mm/sec ² , cm/sec ² , m/sec ² , μ g, mg, g. dB, dBA, dBC, Newton, Pascal, bar, phase angle (degree, radian), coherence(%), Temp in deg C, Torque(N-m) etc.,	Essential (Specify) (in addition to these units, the supplier can specify the extra units)
2.42	Integration & Differentiation of FFT Spectrum.	Integration: Acceleration to Velocity, Velocity to Displacement. Differentiation: Displacement to Velocity, Velocity to Acceleration.	Essential (Specify)
2.43	Measurement Units	RMS, Peak, Peak to Peak, EU ² , PSD (EU ² /Hz), ESD (EU ² .s/Hz), RMS PSD (EU/Hz ^{1/2})	Essential (Specify). (in addition to these units, the supplier can specify the extra units)
2.44	Frequency Axis (scale & units)	Linear, Log, RPM/CPM, RPS/CPS, Hz	Essential (Specify)
2.45	Amplitude Axis (scale)	Lin, Log, dB	Essential (Specify)
2.46	Operating Humidity	0 to 90% RH at 40 ^o C, non condensing	Specify
2.47	Operating Temperature Range	-10 ^o C to +40 ^o C or better	Specify
2.48	Android App for measurement setup and signal monitoring and control	Required	Essential (Specify)
2.49	Recording of Signals on PC Hard Disk & On internal memory of the DAQ	Required	Essential (Specify)

2.50	Standalone Recording of Signals without PC	Required	Essential (Specify)
2.51	Post Processing of the recorded data in PC without the hardware connected	Required	Essential (Specify)
2.52	DSP Based Real Time Noise and Vibration Analyzer compliance to CE Certification	Required	Essential (Specify)
2.53	Compliance to EMC Emission	IEC 61326-1	Essential (Specify)
2.54	Compliance to EMC Immunity	IEC 61326-1	Essential (Specify)
2.55	Compliance to Shocks	IEC 68-2-27	Essential (Specify)
2.56	Compliance to Vibrations	IEC 68-2-6	Essential (Specify)
2.57	Dual Cursor	Required	Essential (Specify)
2.58	Markers	Peak, max, sideband, power band, harmonics.	Essential (Specify)
2.59	Frequency Weighting	A,B,C or Z	Specify
2.60	Calibration certificate with traceability to NIST or PTB or NPL-UK.	Required	Essential (Specify)
3.0 Vibration Sensors. Preferred Make: PCB/IMI/Kistler/B&K. Quantity: 2 Nos.			
3.1	Type	ICP/IEPE, Piezoelectric Accelerometer	Essential (Specify)
3.2	No of Axis	Uniaxial/Single Axis	Essential (Specify)
3.3	Sensitivity	100mV/g	Essential (Specify)
3.4	Frequency Bandwidth	0.5 to 10 kHz	Essential (Specify)
3.5	Connecting Cable	BNC Output, 3 meters length	Essential (Specify)
3.6	Mounting	10-32 UNF	Essential (Specify)
3.7	Mounting Studs and Magnet	Required	Essential (Specify)
3.8	Accelerometer Size	Miniature Size	Specify the size and enclose the datasheet.
3.9	Accelerometer Weight	<20 grams	Essential (Specify)
3.10	Accelerometer Compliance to CE Certification	Required	Essential (Specify)
3.11	Calibration certificate with traceability to NIST or PTB or NPL-UK.	Required	Essential (Specify)
4.0 Laptop. Preferred Make: Dell/HP. Quantity: 1 No.			
4.1	Processor	Intel Core™ i7 11 th Gen (2.6 GHz or better, 12MB Cache or more, 6 cores or more)	Essential (Specify)
4.2	Operating System	Windows 10 or 11 Pro 64 with MS Office 2021 standard edition with media recovery	Essential (Specify)
4.3	Processor Family	11 th Generation Intel Core™ i7 Processor	Essential (Specify)

4.4	Processor chipset	Intel	Essential (Specify)
4.5	Memory	8GB DDR4-2666 SDRAM	Essential (Specify)
4.6	Hard Drive Description	1TB PCIeNVMe™ M.2 SSD	Essential (Specify)
4.7	Display	39.62 cm (15.6") diagonal FHD 144Hz IPS anti-glare micro edge WLED-backlit (1920 x 1080) or better	Essential (Specify)
4.8	Graphics	NVIDIA GeForce 4 GB DDR5	Essential (Specify)
4.9	Ports	1 USB 3.1 Gen 2 Type-C™, 3 USB 3.1 Gen 1 Type-A, 1 HDMI, 1 RJ-45, 1 headphone/microphone combo; 1 microphone; 1 AC smart pin; 1 Mini DisplayPort™	Essential (Specify)
4.10	Expansion Slots	1 multi format SD media card reader	Essential (Specify)
4.11	Webcam	Wide Vision Full HD Camera with integrated dual array digital microphone	Essential (Specify)
4.12	Pointing Device	Touchpad with multi-touch gesture support and 26 key Rollover Anti-Ghosting Key Technology	Essential (Specify)
4.13	Keyboard	Full-Size island style white legend 4-zone lighting RGB backlit keyboard with numeric keypad	Essential (Specify)
4.14	Network interface	Integrated 10/100/1000 GbE LAN	Essential (Specify)
4.15	Wireless	Intel Wireless-AC 9560 (2x2) Wi-Fi and Bluetooth 5 Combo	Essential (Specify)
4.16	Wireless Note	MU-MIMO supported; Miracast compatible	Essential (Specify)
4.17	Power Supply Type	Compatible AC power adopter	Essential (Specify)
4.18	Battery Type	6-cell, 60 Wh Li-ion polymer	Essential (Specify)
4.19	Energy Efficiency Compliance	Energy Star Certified	Essential (Specify)
4.20	Power Adopter	Suitable same brand shall be included	Essential (Specify)
4.21	Carry Case	Same brand shall be included	Essential (Specify)
4.22	Warranty	3 years unconditional onsite warranty.	Essential (Specify)
5.0 Smart Display: Preferred Make: Samsung/LG Ultra HD 4K LED 65. Quantity 1 No.			
5.1	In the Box	1 TV Unit Quick Setup Guide Voice Remote Control AC Power Cord Operating Instructions Table Top Stand IR Blaster Batteries and other required accessories	Essential (Specify)
5.2	Color	Frame Color: Black	Specify
5.3	Display Size	165.1cm (65 inch)	Essential (Specify)
5.4	Screen Type	LED	Essential (Specify)
5.5	HD Technology &	Ultra HD (4K), 3840x2160	Essential (Specify)

	Resolution		
5.6	Smart TV	Required	Essential (Specify)
5.7	HDMI	4	Essential (Specify)
5.8	USB	3.0	Essential (Specify)
5.9	Wi-Fi Type	Wi-Fi certified 802.11 a, b, g, n, a/c	Essential (Specify)
5.10	Built in Wi-Fi	Required	Essential (Specify)
5.11	Launch Year	2021	Essential (Specify)
5.12	Internet Features		
5.13	Built in Bluetooth	Required-optional	Specify
5.14	Ethernet (RJ45)	1	Essential (Specify)
5.15	Other Internet Features	Internet Browser: Smartphone connectivity: Chromecast built in, Photo Sharing Plus, Screen Mirroring (Miracast), Video and TV Side View (iOS, Android) Application Store: Google Play Store	Essential (Specify)
5.16	Connectivity Features		
5.17	HDMI	3 Side, 1 Rear	Essential (Specify)
5.18	USB	3 Side	Essential (Specify)
5.19	Component In (RGB Cable)	1 (Rear Hybrid With composite)	Specify
5.20	Composite In (Audio Video Cable)	1 (Rear Hybrid With composite)	Specify
5.21	Headphone Jack	Audio/Headphone Outputs: 1 (Side Hybrid with Headphone and Subwoofer Out)	Essential (Specify)
5.22	Digital Audio Output	1 Rear	Essential (Specify)
5.23	RF Connectivity Input	1 Rear	Essential (Specify)
5.24	Other Connectivity Features	HDCP:HDCP2.2 (for HDMI 1/2/3/4) Ethernet: 1 Side HDMI-CEC HID(Mouse/Keyboard Connectivity)/HOGP (Low Energy Device connectivity)/SPP (Serial Port Profile)/A2DP (Stereo Audio) 2/A VRCP (AV Remote Control) Bluetooth Version:4.1 USB Drive Format Support: FAT16/FAT32/exFAT/NTFS HDMI Audio Return Channel (ARC)	Essential (Specify)
5.25	Video Features		
5.26	Analog TV Reception	B/G, D/K, I, M	Essential (Specify)
5.27	Digital TV Reception	DVB-T/T2	Essential (Specify)
5.28	LED Display type	Edge LED/AMOLED/NANOCELL	Essential (Specify)
5.29	Refresh Rate	100Hz	Essential (Specify)
5.30	Other Video Features	Picture Modes: Vivid, Standard, Custom, Cinema Pro, Cinema Home, Sports, Animation, Photo-Vivid, Photo-Standard, Photo-Custom, Game, Graphics	Essential (Specify)

		Dynamic Backlight Control Motion Enhancer: Motion flow XR 800 (Native 100 Hz) or any better tech. Video Signal Support: 1080p (50, 60 Hz), 720p (50, 60 Hz), 1080p (30, 50, 60 Hz), 1080/24p, 1080i (50, 60 Hz), 720p (30, 50, 60 Hz), 720/24p, 576p, 576i, 480p, 480i, 4096 x 2160p (24, 50, 60 Hz), 3840 x 2160p (24, 25, 30, 50, 60 Hz)	
5.31	Smart Display Features		Specify
5.32	Processor	Picture Processor: 4K HDR Processor X1	Essential (Specify)
5.33	Storage Memory	16 GB or more with 2 GB RAM	Essential (Specify)
5.34	Operating System Present	Yes	Essential (Specify)
5.35	Operating System	Android	Essential (Specify)
5.36	Screen Mirroring	Yes	Essential (Specify)
5.37	App Store Type	Google Play Store	Essential (Specify)
5.38	Bluetooth	Yes	Essential (Specify)
5.39	Teletext	Yes	Essential (Specify)
5.40	Audio Features		
5.41	Number of Speakers	2	Essential (Specify)
5.42	Speaker Type	Bass Reflex Speaker	Essential (Specify)
5.43	Sound Technology	Dolby Digital, Dolby Digital Plus, Dolby Pulse, DTS Digital Surround	Specify
5.44	Surround Sound	S-Force Front Surround	Specify
5.45	Speaker Output RMS	20 W RMS	Essential (Specify)
5.46	Sound Mode	Music, Sports, Dialog, Cinema, Standard	Specify
5.47	Other Audio Features	Sound Processing: Clear Audio Plus	Specify
5.48	Display Language	English	Specify
5.49	Power Features		
5.50	Power Requirement	AC 110 - 240 V, 50 Hz	Specify
5.51	Power Consumption	Below 500 W, 0.5 W (Standby)	Essential (Specify)
5.52	Other Power Features	Power Saving Mode/Back Light Off Mode	Specify
5.53	Remote Control Features		
5.54	RF Capable	Yes	Essential (Specify)
5.55	Internet Access	Yes	Essential (Specify)
5.56	Warranty Terms		
5.57	Warranty Summary	3 Year Manufacturer Warranty with parts and labor Onsite/offsite Service	
5.58	Mounting Pedestal Stand	1 No. should be included in the package Should be from reputed make. High Quality with Tilt Rotate and height adjust options. With heavy duty caster wheels	Essential

6	Manuals and CD (for Machinery Fault Simulator, DSP based Real Time Noise and Vibration Analyzer, Smart Display)	Operating Manuals, Application Manuals, Electrical Circuit Diagram, Installation and Commissioning, maintenance manuals & other essential documents all in English, 2 sets each	Essential
7	Installation, Commissioning and Integration	Vendor to take full responsibility for carrying out the installation and integration of supplied items at CMTI. Tools and Equipment required for the installation and integration shall be brought by the vendor.	Essential
8	Acceptance Criteria	The equipment shall be tested for its functionality and performance at CMTI as per our technical specifications (for all the parameters) and also simulation and validation of faults and also detailed specifications given in the supplier data sheets.	Essential
9	Performance Warranty	For 24 months from the date of acceptance at CMTI.	Essential (Specify)
10	Training	Supplier to provide comprehensive initial training for 6 days from the respective subject domain experts on hands on usage, operation & maintenance at CMTI at free of cost within 10 days of installation.	Essential (Specify)

Other Terms and Conditions:

1. All the listed software and hardware items in tender, that vendor/supplier quotes should be preferably be a catalogue product and proven.
2. The single vendor has to supply all the items. The vendor has to quote for all the items and if any vendor quotes for partial items will be rejected.
3. If the vendor is not OEM, the OEM authorization certificate and local content percentage in the order value are also submitted along with bidding documents.
4. The vendor should meet all the technical specifications to qualify the bid.
5. The bidder has to submit all necessary technical information documents/data sheets & compliance sheet as per the technical specifications.
6. The vendor/supplier has to sign and stamp (company seal) on all the pages of technical compliance sheet.
7. The vendor/supplier have commissioned more than ten numbers of machinery fault simulators of similar specification in govt institutes/research organization in india, with minimum one installation in bangalore.
8. The vendor/supplier should submit a list of these installations giving the date of supply and contact details along with the quote, so that CMTI engineers may visit these installations and evaluate the system as part of tender evaluation. **Offer without this information will be rejected without any further reference.**