ARMY PUBLIC SCHOOL NARANGI

TENDER NOTICE/SCOPE OF WORK

1. Sealed quotations are invited from registered and reputed firms for the following purchases /works / services to reach Army Public School Narangi by 25 Jan 2022:-

Sl. No	Name of Work	Quantity
(a)	**Computer Laboratory Set up**: Thin Client for 40 Clients with central UPS without Client Monitors. Server Configuration:Core i7,2TB SSD,16 GB RAM, Graphics Card, Window 10 with Multimedia Keyboard and Mouse **Thin Client Make: N Computing** Model: L300Specification: Ethernet Virtual Desktop/ Resolution 24 bit @ 60 Hz Supports up to 1920 X 1080/USB 2.0 X2/1/2.8' 0/100 LAN Port / USB Port for Keyboard and Mouse/VGA Port/Speaker Jack/12V DC In Warranty : One Year **Keyboard** Warranty : One Year onsite **Mouse** Warranty : One Year onsite **Server Make** : HP Model ML 110 Specification : Intel Xeon 10 generation processor /16/GB RAM DDR4/2 TB/7200rpm Hard disk / RAID Controller /Key Board/Miouse/windows Warranty : One Year onsite **UPS Make : Delta N 6 KV** Specification: True Online Double Conversion / 6 KVA/600 Watt Single Phase/Pure Sine Wave/Voltage Range: 200/208 (derating to 90%): 100 Vac~280Vac*220/230/240:100Vac~280 Vac** Battery Back up : 15 Minutes Exide 12 AH X 16 Nos Warranty : Two Years onsite including battery	**04 Nos** **40 Nos** **40 Nos** **01 No** **03 Nos**

(b)	**Establishment of** **(i) AI,AR&VR Lab** **Augmented Reality and Virtual Reality** (a) **3d modeling Software**- Specification –Any 3d modeling software where students can create 3d models and export them in the following file formats -Obj -FBX -There are free software available on line (paint 3D or blender)	30 Nos
	(b) **Augmented Reality (AR) and Virtual Reality(VR) app development software** **Specification** -Platform that can help a student develop AR and VR applications - Custom trigger image -Dynamic VR -Hologram app development -Software platform must have Block coding capability for students to learn coding basics Example:Enabl AR	30 Nos
	Hard VR Headset **Specification:** VR headset where students can -Develop the app and install it in the mobile phone	10 Nos
	Bluetooth remote: Specification Bluetooth remote that has the following functionality -360 degrees joystick -2 pairing modes -4 mode buttons -2 configurable joysticks -	20 Nos
	DIY Hologram Kit: Specification -Pyramid based hologram -Base stilt structure -Side slides for reflection prevention	10 Nos
	Artificial Intelligence **AI Prototyping software** Specification: -Desktop software with user interface that can -Teach students how to identify object based on data inputs -teach students how to predict data - Teach students how to train a machine to recognize images - Software should be capable of displaying the machine's learning accuracy -Software should be capable of testing the machine's learning -Student must be able to change the method by which a machine will learn	30 Nos
	AI Voice Controlled and hardware robot Specification: -Interfacing hardware for AL Camera interfacing -Alexa voice control Interface -Robotic movement control using AI	02 Nos
	(ii) **Space & Astronomy Lab**	

	60 MM aperture Refractory Telescope: **Specification:** - 60mm Aperture, 2 lens based Fraunhoffer with focal length 700mm , Barlow lens 1, a finder 5X24 and a standard eyepiece of 0.965". Must use a rack and pinion focusing arrangement (**This device focuses a lot of light. Looking directly at the SUN through this device can result in partial or complete loss of vision. Please ensure the Solar filter supplied along with is in place during the day)** - Must be able to give practical magnification of 120X and resolution of 2.5 Arc-seconds. - Teach the fundamentals of Galiliean telescopes; Changing of focal length, effective focal length and the use of Barlow lenses - Teach students to view locate and track objects in the night sky using starcharts and the plansiphere - Teach students the value and methods of looking after optical instruments- Teach students the method of mapping the night sky using the azimuthal grid	01 No
	Theodolite/Sextant for Determining Distance to Planets/moon Parallax Method: **Specification:** - The theodilite is an XYZ axis instrument useful for estimating distances. With graduated degree markings, each axis has a resolution of 0.5 degrees. Material is Biodegradable plastic. - Teach students the meaning of parallax.-Teach students the method of triangulation to find large distances. - Teach students teamwork and coordination in measuring the distance to the moon as measured from two different latitudes. - Students learn how to calculate time offsets with longitude	02 Nos
	114 mm Reflecting Newtonian Telescope: Specification: - Newtonian Reflector telescope with a 4.5" aperture enabling the viewing of deep sky objects . Must have the following: Focal length 500 mm and resolution 1 Arc second. Solar filter for safety, Galaxy 1.25 " eyepiece, in addition to standard eyepiece, 2 Barlow lens, a collimation tool, - Mounting. Study EQ3 equatorial Mount with manual tracking and slow motion movement along RA DEC coordinates. - teach students the optics of a reflecting telescope. - teach students the physics and astronomy of equatorial grid and equatorial mounts with hands on ability to track an object. - Teach students how to look for deep sky objects, the effect of light pollution and locating objects using the planisphere. - Enable students to view and photograph the moon and sun in high magnification . - Create a deep appreciation of night sky astronomical viewing and the challenges associated.- Teach students the meaning of astronomical magnitude and use of Mag 5 and Caldwell star charts	01 No
	Planisphere: - **Specification:** Planisphere is a useful tool for locating stars. Must have starc hart size 4" dia fitted for a latitude (works within +/- 2.5 deg) . This sturdy 3 D printed version must be openable for changing the star chart. Material must be biodegradable plastic.	02 Nos
	Nano Satellite Kit: Specification: - LoRA (long range) based nano satellite kit with range of upto 1km LOS (line of sight) - Cube satellite kit with transmitter satellite (Cubesat) and base station module - Transmitter module must have variable temperature, light and motion sensors integrated - Base station module must be accompanied with base station visualization software - Transmitter should be programmable using Arduino programming platform - Students must be able to configure and set logic for the transmitter and receiver module to perform various data monitoring space simulations	03 Nos

	VR Headset Kit + Specification: **Virtual Reality Experience Software for Various Spaceships** VR Software: - Spaceship flying simulator for the solar system - Must cover all the planets of the solar system and Asteroid belt - Reticule based Interactive text information to be displayed so that educational information is automatically displayed once the student looks at a particular planet - Audio integration feature - Seamless integration of the software with the bluetooth headset specified VR headset where students can insert the mobile phone into the headset Bluetooth remote to have the following functionality - 360 degrees joystick - 2 pairing modes - 4 mode buttons - 2 configurable joysticks	05 Nos
	3D Printed Surface of the Moon (4 sqft) **Specification:** - 3D printed surface of the moon that is at par with NASA imagery and 3D models. The 3D printed model must be of the same colour as the Moon's surface - 3D printed surface must be in 1 sq ft modules that must be interconnected using dowel connectors - The 3D printed surface must be accompanied with an augmented reality application that can show students, the landing of a spacecraft on the 3D printed surface.	01 Nos
	3D Printed Surface of Mars (4 sq ft) **Specification:** - 3D printed surface of Mars that is at par with NASA imagery and 3D models. The 3D printed model must be of the same colour as Mars surface - 3D printed surface must be in 1 sq ft modules that must be interconnected using dowel connectors - The 3D printed surface must be accompanied with an augmented reality application that can show students, the movement of a rover on the 3D printed surface of Mars.	01 No
	3D Printed Rover: Specification: - Kit that contains the various 3D printed parts of the curiosity Mars rover at par with NASA's imagery and 3D models - The 3D kit must contain the following parts 6mm-pin. 17,body. 1,tire. 6,wheel. 6,lower-suspension. 1upper-suspension 1 mounting-bracket. 2,steering-bracket. 4,swivel-bracket. 1,swivel. 1,upper-arm. 1 lower-arm. 1,mahli-apxs. 1,chemcam.	01 No
	Laminated Lab Posters (Size: A1): Specification: - A1 size laminated posters depicting images and description of the following components - Solar system - Cube satellites - Telescopes - Curiosity Rover - Moon surface - Mars surface - Space fun facts 1 - Space fun facts	08 Nos

	(**iii) Drone Lab** **Mega Drone Kit -** **Drone Simulator License** **Specification:** **Drone Simulator:-** 1. Desktop application for simulation of drone flight. 2. Drone training and operation on drone movements. 3. Meeting and completing challenges on the software. 4. Windows 10 or Browser based version (Needs 2 GB RAM). **Basic Quad Copter Drone** **Specification:** **Basic Quad Copter Drone:-** 1. Primus V4 STM32F303: 72Mhz Controller. 2. Total 4 MOSFET drives. 3. 10-DOF sensor suite. 4. WIFI interface. 5. 10 Minutes flight time: 600mAH Battery. 6. Range: 60m. 7. Programmable with Cygnus IDE in C++. 8. Payload max 15 gm. 9. Total weight 85 gm. 10. Size 16cmX 16cm. 11. Lipo Battery 600 mAh. **Mega Quad Copter Drone: Specification:** 1. Total 4 MOSFET drives. 2. 10-DOF sensor suite. 3. WIFI interface. 4. 10 Minutes flight time: 600mAH Battery. 5. Range: 60m. 6. Programmable with Cygnus IDE in C++. 7. Payload max 15 gm. 8. Total weight 85 gm. 9. Size 16cm X 16cm. 10. Lipo Battery 600 mAh.	06 Nos 06 Nos 06 Nos