

ಶಿಕ್ಷಣ ಸಚಿವಾಲಯ

ಸಂಖ್ಯೆ: ಇಡಿ 34 ಮಾಹಿತಿ 2016

ಕರ್ನಾಟಕ ಸರ್ಕಾರದ ಸಚಿವಾಲಯ

ಬಹುಮಹಡಿಗಳ ಕಟ್ಟಡ

ಬೆಂಗಳೂರು, ದಿನಾಂಕ: 20.12.2016

ಇಂದ

ಸರ್ಕಾರದ ಪ್ರಧಾನ ಕಾರ್ಯದರ್ಶಿಗಳು

(ಪ್ರಾಥಮಿಕ ಮತ್ತು ಪ್ರೌಢ ಶಿಕ್ಷಣ)

ಶಿಕ್ಷಣ ಇಲಾಖೆ

ಬಹುಮಹಡಿಗಳ ಕಟ್ಟಡ

ಬೆಂಗಳೂರು,

ಇವರಿಗೆ,

1. ಆಯುಕ್ತರು, ಸಾರ್ವಜನಿಕ ಶಿಕ್ಷಣ ಇಲಾಖೆ
2. ನಿರ್ದೇಶಕರು, ಪದವಿ ಪೂರ್ವ ಶಿಕ್ಷಣ ಇಲಾಖೆ, ಮಲ್ಲೇಶ್ವರಂ, ಬೆಂಗಳೂರು
3. ರಾಜ್ಯ ಯೋಜನಾ ನಿರ್ದೇಶಕರು, ಸಶಿಲ/ರಾಮಾಶಿಲ, ಬೆಂಗಳೂರು
4. ನಿರ್ದೇಶಕರು, ಕಪ್ರೋಶಿಪಮಂಡಳಿ, ಮಲ್ಲೇಶ್ವರಂ, ಬೆಂಗಳೂರು
5. ನಿರ್ದೇಶಕರು, ಡಿಎಸ್‌ಇಆರ್‌ಟಿ, ಬೆಂಗಳೂರು

ಮಾನ್ಯರೆ,

ವಿಷಯ: ದಿನಾಂಕ 19.11.2016ರಂದು ನಡೆದ ಟ್ಯಾಪ್ ಸಭೆಯ ನಡವಳಿಗಳನ್ನು ಕಳುಹಿಸುತ್ತಿರುವ ಕುರಿತು.

ದಿನಾಂಕ 19.11.2016ರಂದು ನಡೆದ ಶಿಕ್ಷಣ ಇಲಾಖೆಯ ತಾಂತ್ರಿಕ ಸಲಹಾ ಸಮಿತಿ ಸಭೆಯ ನಡವಳಿಗಳನ್ನು ಇದರೊಂದಿಗೆ ಲಗತ್ತಿಸಿ ಇಲಾಖಾ ಮುಖ್ಯಸ್ಥರುಗಳಿಗೆ ಕಳುಹಿಸಲಾಗುತ್ತಿದೆ. ಇಲಾಖೆಯ ಇ-ಆಡಳಿತ ಕ್ರಿಯಾ ಯೋಜನೆಗಳನ್ನು ಡಿಪಿಎಆರ್‌ನ ಇ-ಆಡಳಿತ ವಿಭಾಗದಿಂದ ಅನುಮೋದಿಸಿಕೊಂಡು ಮುಂದಿನ ಅಗತ್ಯ ಕ್ರಮವಹಿಸುವಂತೆ ತಮಗೆ ತಿಳಿಸಲು ನಿರ್ದೇಶಿತನಾಗಿದ್ದೇನೆ.

ತಮ್ಮ ವಿಶ್ವಾಸಿ

(ಅರ್ಜುನ ಪಾವಟೆ)

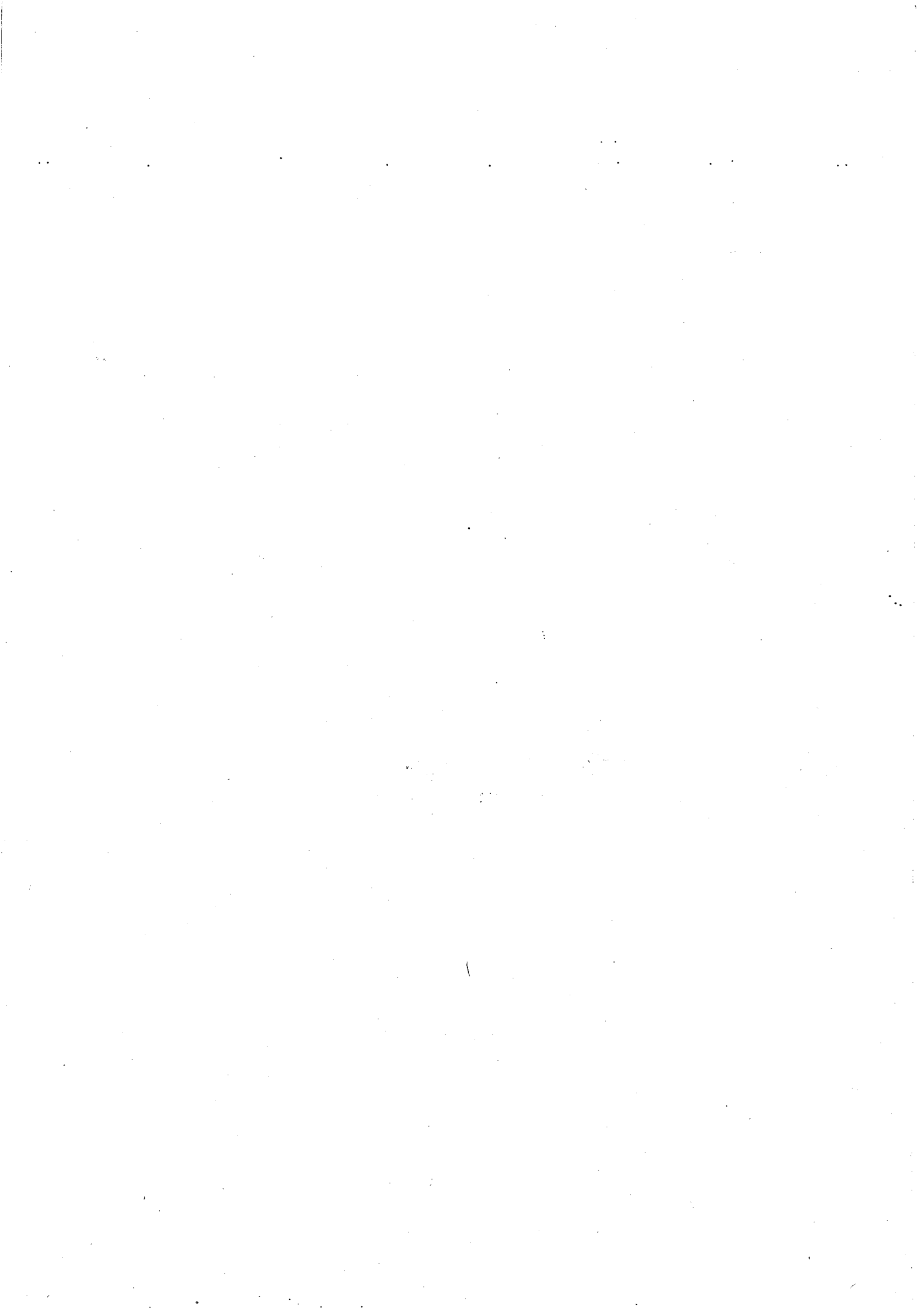
ಆಂತರಿಕ ಆರ್ಥಿಕ ಸಲಹೆಗಾರರು ಹಾಗೂ

ಉಪ ಕಾರ್ಯದರ್ಶಿ (ಯೋಜನೆ)

ಪ್ರಾಥಮಿಕ ಮತ್ತು ಪ್ರೌಢ ಶಿಕ್ಷಣ

ಪ್ರತಿಯನ್ನು

1. ಕಾರ್ಯದರ್ಶಿಗಳು, ಇ ಆಡಳಿತ, ಸಿಅಸುಇ, ಬೆಂಗಳೂರು
2. ಸರ್ಕಾರದ ಜಂಟಿ ಕಾರ್ಯದರ್ಶಿ, ಆರ್ಥಿಕ ಇಲಾಖೆ, ವಿಧಾನ ಸೌಧ ಬೆಂಗಳೂರು
3. ನಿರ್ದೇಶಕರು, ಯೋಜನಾ ಇಲಾಖೆ, ಎಂ&ಇ ವಿಭಾಗ, ಬಹುಮಹಡಿ ಕಟ್ಟಡ, ಬೆಂಗಳೂರು



E-GOVERNANCE UNIT, EDUCATION DEPARTMENT

PROCEEDINGS OF THE TAP MEETING HELD UNDER THE CHIRMANSHIP OF PRINCIPAL SECRETARY TO GOVERNMENT, PRIMARY AND SECONDARY EDUCATION, AT 10.30 AM ON 19.11.2016.

Members present:

1. Sri. Ajay Seth, IAS, Principal Secretary to Government, Primary and Secondary, Education Department –Chairman.
2. Dr. Chandrashekar Ramanathan, Associate Dean (Academics), International Institute of Information Technology Bengaluru
3. Sri.S.Ramanathan, Group Director, Computers and Information Group, ISRO Satellite Centre, HAL Airport road Vimanapura Post Bengaluru-560017.
4. Sri, Thangavelu, Director, NIC, Bengaluru
5. Sri. Sundaram Ramanathan, Head SEMT, CEG Bengaluru
6. Sri. N.B. Girijappanavar, Under Secretary, Finance Department, Bengaluru
7. Smt. Sowjanya, Commissioner for Public Instructions, K.R. Circle Bengaluru
8. Sri. P.C. Jaffer, State Project Director, SSA/RMSA Bengaluru
9. Smt. C. Shikha, Director, Pre University Education, Malleswaram, Bengaluru
10. Sri. Bellashetty, Director, DSERT, Bengaluru
11. Smt Yashodha Bhopanna, Director, KSEEB, Bengaluru
12. Smt. Aparna Pavate, Internal Finance Advisor and Deputy Secretary Government, Planning, Education Department.

The meeting of the Technical Advisory Panel was held on 19.11.2016 to consider the following proposals of the various heads under the department of Primary and Secondary Education.

- Procurement of Laptops for free distribution to the toppers in the SSLC examination.
- Procurement of Laptops and inkjet printers for use by KSEEB.
- Procurement of Laptops for setting up computer lab at DIETs.
- Procurement of Laptops, Mini PCs, Desk tops PCs, Projectors and UPS for use at schools under Technology Assisted Learning Programme (TALP)
- Procurement of Mini PCs, Projectors and UPS for use at schools under CALC by SSA.

- Procurement of All in Desktops, Laser Printers, Laptops, All in one colour printers A4 & A3 size, UPS systems and Bio metric devices for use at colleges by the department of Pre University Education.
- Procurement of Computers, MFDs and UPS for use at BEO offices.

1. Procurement of Laptops for free distribution to the toppers in the SSLC examination.

The Director, KSEEB, Bengaluru submitted that the department will be distributing Laptops to the top scorers in the class 10 examinations held during Mar/Apr 2016. She further submitted that the department was also planning to procure the Laptops for distributions to top scorers in the examination to be held during Mar/Apr 2017. The procurement for the year 2016 will be made immediately and for the year 2017 will be made during April 2017. The specifications of the Laptops intended to be procured during 2016 and 2017 was placed before the committee. It was noted that the laptops were to be distributed to the beneficiary children without much delay after the results are announced, so that the children can get the benefit of the laptops for their further study. The procurement of Laptops for the year 2016-17 is already delayed. The distribution of the laptops for the year 2017-18 should be made immediately after the results are announced and with that intention the procurement process should be initiated during April 2017. With this objective the specifications of the Laptops were discussed in detail and the committee approved the specifications of the Laptops as detailed in annexure 1.

2. Procurement of Laptops and inkjet printers for use by KSEEB.

The Director, KSEEB, Bengaluru submitted that 2 laptops and 12 Inkjet printers were needed for routine office use. After discussions, the specifications of the Laptops as in Annexure 1 and that of the Inkjet printers as in Annexure 2 were approved.

3. Procurement of Laptops for setting up computer lab at DIETs.

Project Approval Board has approved procurement of Laptops for the computer Labs to be set u at DIETs. These computer labs would be deployed for training of the teachers in the use of Information Technology to enhance their teaching skills by adapting e-content in the classroom processes. The specifications of the Laptops intended for the computer Labs to be set up at DIETs were considered by the committee. Since that the training of the teachers under TALP programme would be organized in the DIETs, it was felt that the laptops deployed at DIETs for teacher training shall be the same as intended to be

procured under TALP. The specifications of the Laptops as in annexure 3 were approved for both computer labs in DIETs and for use under TALP.

4. Laptops, Projectors, Mini PCs, Desktop Computers, for schools under TALP by DSERT.

The specifications of Laptops, Projectors, Mini PCs, Desktop Computers and UPS systems intended to be procured under Technology Assisted Learning Programme by DSERT was discussed at length. The Laptops are intended to be used in the schools by the teachers for classroom teaching. The repository of the available e-content will be stored on these laptops and they will be used by the teachers in their classroom teaching as a teaching aid. LCD projectors will be used to display the e content. After detailed discussions the specifications of Laptops and Projectors were approved as detailed in Annexures 3 and 4.

To provide hands on experience of using the computers, it was submitted that each of the schools will be provided with 10 mini PCs and a desktop – (a mini PC with an external hard disk) which would serve as a local server to access the internet facilities and enable the school to download the e-content from the state data centre. Having considered the configurations of the Mini PCs vis-a-vis the desktops, the experts in the committee raised concerns on the issue of the mini PCs suitability for working on linux operating system, the price advantage and the consumption of power. Considering obsolescence, hardware, Linux OS and software maintenance support, decision could be taken on the procurement of mini PCs. In case these parameters are not favourable, it was felt that the all- in- one desktops could be a better option compared to Mini PCs converted into a desktop. The Director DSERT was instructed to coordinate with Centre for E-Governance and check out the feasibility of Mini PCs vis a vis regular All- in- one desktops in terms of obsolescence, hardware, Linux OS, cost effectiveness and consumption of power and place the issue for consideration in the next meeting. The specifications of the mini PCs were found to be acceptable however the subject was deferred for consideration in the next meeting.

5. Procurement of Desk top Computers for setting up the computer lab at DSERT.

The Director, DSERT intends to procure around 30 desktop computers to set up a computer lab for training of the teachers. This subject got left out in the discussions. The specifications of the all in one desktop computers was placed before the committee members through e-mail circulation and based on their opinion the configurations of the all-in-one desktop computers as in annexure 5 are approved.

6. Procurement of Mini PCs, Projectors and UPS for use at schools under CALC by SSA.

The State Project Director submitted that they intend to procure computers, projectors and UPS for use in schools under CALC programme. They further submitted that the mini pcs, desktops, projectors and UPS approved for TALP would be sufficient for CALC as they would be put to similar use. Committee agreed that the specifications of computers, projectors and UPS approved for TALP could be applied to CALC programme also. However the procurements would be made depending on the availability of funds.

7. Procurement of All-in-one Desktops, Laser Printers, Laptops, All in one colour printers A4 & A3 size, UPS systems and Bio metric devices for use at colleges by the department of Pre University Education.

The Director, Pre University Education, presented the list of the computers and related equipments required for the implementation of the Khajane 2 in the department. The technical specifications of All- in- one Desktops, Laser Printers, Laptops, All in one colour printers A4 & A3 size, UPS systems and Bio metric devices intended to be procured by the department were discussed in detail and the committee approved the specifications as given in annexure 6, 7, 8, 9, 10, and 11.

8. Procurement of Computers, MFDs and UPS for use at BEO offices.

The Commissioner for Public Instructions presented that the computers that were supplied to BEOs offices are old enough and these offices need to be strengthened with the new computers, Printers and UPS systems. However adequate funds are not available. Subject to availability of the funds, the specifications of the computers and printers are approved as in annexure 12 and 13.

Administrative approvals as needed should be obtained from the Government before making procurements.

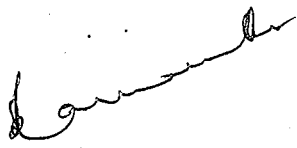
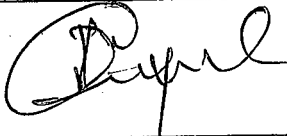
The meeting concluded with a vote of thanks.

Ajay Seth 12/12/16

(Ajay Seth.)

Principal Secretary to Government and
Chairman, TAP Committee
(Primary and Secondary Education)

1 Dr. Chandrashekar Ramanathan Associate Dean (Academics) International Institute of Information Technology Bangalore	<i>R. Seth</i>
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2. Sri. S. Ramanathan, Group Director, Computers and Information Group, ISRO Satellite Centre, HAL Airport Road Vimanapura Post Bangalore-560017	
3. Sri. Thangavelu, Director, NIC, Bengaluru	
4.	

Laptops for SSLC Toppers

ANNEXURE 1

Sl.No	Component	Specifications details
1	Processor	Intel Core i3(6 th Generation) or AMD 10 6 th generation with 2.2 Ghz base frequency or better, 35w TDP or lower, 2MB L2 cache or higher
2	Display	14" or higher with minimum 1366*768 resolution
3	Memory	4GB DDR3/DDR4 with 1 free slot upgradable to 8GB
4	Secondary Storage	500GB HDD or higher
5	Connectivity Technology	WiFi 802.11 b/g/n Adapter
6	Keyboard	Standard keyboard and touch pad
7	Optical Drive	Super multi tray – in DVD Drive
8	Ports/Card reader	Minimum 3 USB ports with at least one USB 3.0, Media card reader, VGA/HDMI port, RF45 port
9	Battery	4-cell or higher with 4 hour backup during normal usage
10	Audio and Visual	Built in microphone and stereo sound speakers, HD Webcam
11	Laptop Casing	Strong Hinges with Casing for longer durability and stability for good quality support structure
12	Security	USB Port Security – Through BIOS
13	Weight	Not more than 3 Kgs. Including battery
14	Carry case	Good quality backpack should be provided by the vendor
15	Operating System	Windows 10 64 bit home edition
16	Software	Apache open Office preloaded, Libra Open Office preloaded
17	Warranty	One year warranty

Printer Specifications (Ink Tank Printer)

ANNEXURE 2

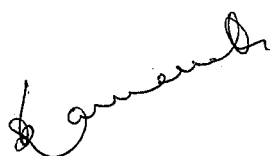
Component	Specification
Printing	
Print Method	Inkjet using Ink Tank technology
Print Type	Monochrome (if colour printer is provided, must be able to operate with Black Ink alone by default)
Print Direction	Bi –Directional printing preferred
Print Speed	
Max Black Draft Text-Memo (A4)	12ppm(+/-)2ppm
ISO Default – ISO 24724 Black	Approx 8 ipm
Double-sided printing	Yes (manual)
Collate(yes/no)	Yes
Printer Interface	
USB	Hi – Speed USB 2.0
Ethernet	Preferred
Paper Handling	
Paper Feed Method	Friction feed
Number of paper Trays	1
Paper Hold Capacity	
Input Capacity	100 sheets, A4 Plain paper(75g/m2)
Output Capacity	30 sheets, A4 Plain Paper (Default Text)
Paper Size	A4,A5,A6,B5, 10*15cm(4*6”), 13*18cm(5*7”), 9*13cm(3 1/2*5”), Letter(8 1/2*11”), Envelopes:#10(4 1/8*9 1/2”) DL(110*220mm), C6(114*162mm)
Operating System Compatibility	Windows XP/7/8/10
Duty Cycle(maximum)	10,000 pages per month
Average use per month	4000 pages per month
Waranty	One year warranty

A handwritten signature and a set of initials are present at the bottom of the page. The signature is written in cursive and appears to be 'L. Kumar'. The initials are 'L.K.'.

Laptops 1000 Nos for schools and computer labs in DIETs

SI No.	Component	Specifications details
1	Processor	Intel Core i5(6th Generation) U Series or equivalent or higher with 2.2Ghz base frequency or better, Ultra Low power 35W TDP or lower, 2MB L2 cache or higher
2	Display	15.6" or higher with minimum 1366X768 resolution Options available at HD (1366x768), HD+ (1600x900) and FHD (1920x1080)
3	Memory	4GB DDR4 with 1 free slot upgradable to 8GB
4	Secondary Storage	1TB HDD or higher
5	Connectivity Technology	WiFi 802.11 b/g/n/ac Adapter
6	Keyboard	Standard keyboard and touch pad
7	Optical Drive	Supermulti tray-in DVD Drive
8	Ports / Card reader	Minimum 3 USB ports with at least one USB 3.0, Media card reader, VGA/HDMI port, RF45 port
9	Battery	4-cell or higher with 4 hour backup during normal usage
10	Audio and Visual	Built in microphone and stereo sound speakers, HD Webcam
11	Laptop Casing	Strong Hinges with Casing for longer durability and stability for good quality support structure
12	Security	USB Port Security- Through BIOS
13	Weight	Not more than 3 Kgs. Including battery
14	Carry Case	Good quality backpack should be provided by the vendor
15	Operating System	Windows 10 64 bit Professional edition
16	Software	Apache open Office preloaded/Libre Open Office preloaded
17	Warranty	Five year comprehensive maintenance at district Headquarters
18	Certification	EPEAT Registered, Energy Star 6.0

SI No.	Component	Specifications details
1	Native Resolution	XGA (1024 x 768) or higher
2	Brightness	2500 Lumens or higher
3	Lamp life	Upto 5,000 hours
4	Video compatibility	NTSC, PAL
5	HDTV	720p, 576p, 576i, 480p, 480i
6	Audio	Audio out connector support
7	Zoom/focus	Manual
8	Display input	VGA, HDMI/DVI, USB, Composite A/V
9	Aspect ratio	4:3 and 16:9
10	Remote	Full function remote
11	Connectivity	HDMI/VGA
12	Warranty	5 years onsite warranty , 3000 hours on Light Source (Bulb has to be replaced for less than 3,000 hours calculated at 200 school days, 3 hours a day)
13	Case	In case mobility is required, a suitable case is also needed, when transported within the case warranty is covered.
14	Accessories	Power cord, Mouse control accessory for computer, HDMI, VGA , Audio cables – 4m length, full function remote
15	Others	Auto shutoff functionality to save lamp life when projector controls are not operated after a certain time period




All In one Desk top Computers for computer lab at DSERT

Component	Specification
Processor	Intel quad core i5 of 6 th Generation or its AMD equivalent.
BASE FREQUENCY	2.2 Ghz of higher
PROCESSOR CACHE	6MB cache or higher
MOTHERBOARD & CHIPSET	Intel/Gigabyte Original Motherboard/ Motherboard of the OEM with Intel Chipset
Power supply type	65 W AC power adapter
SYSTEM MEMORY	8 GB 1600 Mhz of higher DDRIII or DDR IV memory
EXPANDABLE MEMORY	Upto 16 GB, at least 2 slots
STORAGE	Integrated dual port SATA controller, HDD 2 TB 5400 rpm or higher
Pre loaded operating system	Windows 10 professional 64 bit
Screen size & resolution	19.5" of higher WLED, full HD 1920x1080 with anti glare coating
Colour	Black
GRAPHIC PROCESSOR	500 MB or higher integrated HD graphics
Web camera	Integrated wide screen HD 720P or higher Webcam
Keyboard & Mouse	Wire USB standard 104 keys keyboard, wired USB Optical Scrolling Mouse of the same brand
Microphone	Integrated digital microphone
Speakers	HD stereo sound speakers 1+1 built in
Ethernet	Integrated Gigabit Ethernet Controller with IPv6 compliant
Wireless	Wireless 802.11ac/n
Ports & chasis	2x3.0 USB or more (1 side), 2x2.0(rear) USB or more, HDMI port or display port with HDMI converter, LAN port(ggabit RJ 45), 1 Universal Head set(side), Line out 1 rear
Power supply	Compatible power supply 230V, 50-60Hz
Warranty	5 years onsite comprehensive warranty
Certifications	FCC, UL, Energy Star, 6.0, Microsoft windows

PU Department

Desktops-1210 Nos

ANNEXURE 6

Component	Specification
Processor	Intel® Core™ i3-6100U (2.3 GHz, 3 MB cache, 2 cores)
MEMORY	4 GB DDR4-2133 SDRAM (1 x 4 GB)
STORAGE	1 TB 7200 rpm SATA
Graphics	Integrated Intel® HD Graphics 520
Optical drive	Ultra Slim-tray SuperMulti DVD burner
Display	21.5" diagonal FHD IPS WLED-backlit (1920 x 1080)
CONNECTIVITY	Wireless 802.11b/g/n (1x1) and Bluetooth® 4.0 combo
Network interface	Integrated 10/100/1000 GbE LAN
Ports	2 USB 2.0; 2 USB 3.0; 1 headphone/microphone combo; 1 HDMI
Webcam	Webcam with dual array digital microphone
Pointing device	USB optical mouse
Keyboard	USB Standard keyboard
Audio features	DTS Studio Sound™; Dual speakers
Power supply type	65 W AC power adapter
Warranty	3years warranty, toll-free technical phone support for the first 30 days
Operating system	Windows 10 Home 64, MS office 2010 or above.

Laser Printer- A4 Size 1235 Nos

ANNEXURE 7

Component	Specification
Function	Printing, Copying, Colour scanning & network scanning
Print quality	600x600dpi
Duty cycle	5000 pages per month
Print speed	18ppm
Connectivity	Hi speed USB 2.0 port, 10/100 Base Ethernet network port
Duplex printing	Yes
Scan file format	JPEG, TIF, PDF, GIF, BMP
Scan resolution	Upto 1200dpi
Scan speed	Upto 8ppm(b&w), 3ppm(colour)
Warranty	3 years warranty
OS support	Windows7, 8 & 10

Laptops for office use- 2 nos

ANNEXURE 8

Sl.No	Component	Specifications details
1	Processor	Intel Core i5(latest Generation) or AMD equivalent, with 3.3 Ghz base frequency or better, 35w TDP or lower, 6MB cache or higher
2	Display	14" or higher with minimum 1366*768 resolution
3	Memory	4GB 1600MHz, expandable upto 16GB
4	Secondary Storage	500GB HDD or higher
5	Connectivity Technology	WiFi 802.11 b/g/n Adapter
	Display	19' Anti glare LED monitor
6	Keyboard	Standard keyboard and touch pad
7	Optical Drive	8X or better
8	Ports/Card reader	Minimum 4USB ports
9	Battery	4-cell or higher with 4 hour backup during normal usage
	Networking facility	10/100/100 on board integrated network port with remote booting facility, remote system installation, remote wake up.
10	Audio and Visual	Build in microphone and stereo sound speakers, HD Webcam
11	Chasis	Ultra slim form factor
12	Security	USB Port Security – Through BIOS
13	Weight	Not more than 3 Kgs.Including battery
14	Carry case	Good quality backpack should be provided by the vendor
15	Operating System	Windows 8.1 professional certification
16	Software	Office 2013
17	Warranty	3 years warranty

All In one Printer-Colour, A4 & A3 size - 02 Nos

ANNEXURE 9



Component	Specification
Function	Printing, Copying, Colour scanning & network scanning
Print quality	600x600dpi, mono / colour
Duty cycle	10000 pages per month
Print speed	25ppm
Connectivity	Hi speed USB 2.0 port, 10/100 Base Ethernet network port
Print size	A4, A3
Duplex printing	Yes
Scan file format	JPEG, TIF, PDF, GIF, BMP
Scan resolution	Upto 1200dpi
Scan speed	Upto 15ppm(b&w), 3ppm(colour)
Warranty	3 years
OS support	Windows7, 8 & 10

UPS 400va 20 min backup – 1190 Nos**ANNEXURE 10**

Component	Specification
Capacity	400va
Backup time	20 mins
Overload protection	Yes
Input voltage	230v
Out put power wattage	360W
Output voltage	230v
Output frequency	47-63
Warranty	1 year

Biometric devices- 1237 Nos**ANNEXURE 11**

Component	Specification
Resolution	500 DPI, 8bit, 256 level grey scale
Image capture	10 frames/second
	Usb,2.0data and power, compatible with windows 2000, xp and above
Compatibility	UIDAI compatible- for Aadhar



Component	Specification
Processor	Intel® Core™ i3-6100U (2.3 GHz, 3 MB cache, 2 cores) or AMD equivalent
MEMORY	4 GB DDR4-2133 SDRAM (1 x 4 GB)
STORAGE	1 TB 7200 rpm SATA
Graphics	Integrated Intel® HD Graphics 520
Optical drive	Ultra Slim-tray SuperMulti DVD burner
Display	18.5" diagonal FHD IPS WLED-backlit (1920 x 1080)
CONNECTIVITY	Wireless 802.11b/g/n (1x1) and Bluetooth® 4.0 combo
Network interface	Integrated 10/100/1000 GbE LAN
Ports	2 USB 2.0; 2 USB 3.0; 1 headphone/microphone combo; 1 HDMI
Webcam	HP Webcam with dual array digital microphone
Pointing device	Wireless optical mouse
Keyboard	USB Standard keyboard
Audio features	DTS Studio Sound™; Dual speakers
Power supply type	65 W AC power adapter
Warranty	3-year
Operating system	Windows 10 Home 64

Component	Specification
Function	Printing, Copying, Colour scanning & network scanning
Print quality	600x600dpi, mono / colour
Duty cycle	10000 pages per month
Print speed	25ppm
Connectivity	Hi speed USB 2.0 port, 10/100 Base Ethernet network port
Print size	A4, A3
Duplex printing	Yes
Scan file format	JPEG, TIF, PDF, GIF, BMP
Scan resolution	Upto 1200dpi
Scan speed	Upto 15ppm(b&w), 3ppm(colour)
Warranty	3 years
OS support	Windows7, 8 & 10

Command 