**Specification for Pentahead Research and Teaching Microscope (with Phase contrast) Camera attachment and Imaging Software (Quantity-1)**

**Optical System**: Universal Infinity corrected optical system.

**Illumination:** The microscope should have an ergonomic stand with high intensity - at least 14 watt LED illumination system with a life of 50,000 hours or more. The intensity/brightness should be equivalent to a 12 volt 100 watt halogen bulb.

**Focus:** Coaxial coarse & fine focusing with at least 25 mm stage stroke with coarse adjustment limit stopper. Fine focusing knob with minimum adjustment gradations of 1 µm or better. Torque adjustment for coarse adjustment knobs

**Upgradability:** The quoted microscope should be onsite upgradable to at least 20 more additional heads; full stepwise motorization like motorised 7-position or higher DIC nosepiece, motorised 7-position or higher universal condenser with motorized polarizer in/out movement, motorised 6-position or higher fluorescence turret, motorised stage and DIC (Differential Interference Contrast).

**Observation Tube**: Widefield tilting ergonomic Trinocular tube having continuously variable tilting angle range of 5˚ - 35˚ or more provided with paired widefield eyepieces. Three way light path distribution for simultaneous viewing and imaging of the specimens.

**Eyepieces**: Should be of at least 10X magnification, with diopter adjustment facility in both eyepieces with F.N. 22 or higher.

**Nosepiece**: Septuple (7-positions) revolving nosepiece with a slot for analyzer or DIC slider

**Objectives:** The following objectives should be quoted:-

1. Plan Achromat 2X

2. Plan Achromat 4X/5X

3. Plan Achromat 10X Phase contrast

4. Plan Achromat 20X

5. **Plan Apochromat spring loaded 40x N.A. 0.95 or higher, WD 0.18 mm or higher, correction collar**

**6. Plan Apochromat/Semi Apochromat spring loaded 60x dry/air N.A. 0.9 or higher, WD 0.2 mm or higher, correction collar**

**7. Plan Apochromat spring loaded 100X oil N.A. 1.45 or higher, WD 0.13 mm or higher**

Objectives with higher N.A. will be preferred. All Apochromat objectives should have high transmittance of > 80% from 400 – 700 nm. The respective transmittance graphs should be enclosed with the bids mandatorily.

**Stage**: Mechanical stage with ceramic coating, with double slide holding capacity. Travel range of at least 76 x 52 mm.

**Condenser:** Universal condenser for Brightfield, phase contrast and darkfield (DF up to 40X) with at least 5-position turret. N.A. 1.1 or higher

**Analyzer & Polarizer:** One set of analyzer & polarizer should be a standard part of the quote

**Teaching Attachment:** For 1+5 persons, with tilting ergonomic binocular heads with continuously variable tilting angle range of 5˚ - 35˚ or more provided with paired widefield eyepieces of at least 10X magnification, with diopter adjustment facility in both eyepieces with F.N. 22 or higher. Two colour, intensity controllable LED arrow pointer. The control buttons should be convenient and sensitive. Arrow rotational stick, arrow rotational dial and colour selection dials should be provided.

**Digital Imaging System:** Digital color camera with a resolution of at least 5 Mega Pixels, 1/2 inch or bigger sensor size, speed of at least 45 fps at full resolution up to 60 fps in full HD mode, USB 3.0 or better interface. Software for Image & video acquisition, user experience customization, Document groups for side-by-side image comparison, Tile view (multiple images in a single data set shown side-by-side), annotation, interactive measurements, scale bar, etc. USB3.0 interface. C- Mount Adapter 0.5X. Branded PC System with i7, 8GB RAM, 1TB HDD, 64 bit or better, Keyboard, Mouse & at least 28-inch Monitor. Digital Camera, software & Microscope should be mandatorily from the same manufacturer.

***Other Mandatory Conditions:***

1. The bidder must mandatorily mention the web links of the manufacturer’s website for the quoted microscope to confirm compliance to the specifications.
2. The quoted system should be onsite upgradable to full motorization, DIC and at least 15 additional heads.
3. The quoted microscope should be CE/FDA certified
4. The supplier should have direct technical and application support from the Principal Company in India.