Annexure-1

Payloads recommended for Venus Orbiter Mission(VOM)

S.No	Name of the VOM Payload	Science Objectives
1.	Venus S-Band SAR (VSAR)	• Investigation of active volcanism/tectonism on Venus surface through observation with polarimetric SAR at high spatial resolution. • Characterization and retrieval of surface physical properties and weathering/Aeolian features through polarimetric SAR data.
2.	Venus Advanced Radar for Topside Ionosphere and subsurface sounding (VARTISS)-Subsurface	• Study and Characterization of vertical subsurface structure and stratigraphy of various geological units • Estimation of lava flow thickness and volume that extruded onto the surface at different time/stratigraphic levels
	Venus Advanced Radar for Topside Ionosphere and subsurface sounding (VARTISS)-Ionosphere	• Characterization of the Venus topside ionosphere and studying its temporal and spatial variability • Studying the plasma and magnetic boundaries
3.	Venus Thermal Camera (VTC)	• Measurement of Brightness Temperature and its variability of Venus using broadband spectrum • Understanding the climate evolution of Venusian atmosphere through radiation budget study
4.	Venus Cloud Monitoring Camera (VCMC)	• Monitoring of super rotation of atmosphere through measurement of cloud velocities • Investigation into the speculated correlation between SO2 and unknown UV absorbers.
5.	Venus Atmospheric SpectroPolarimeter (VASP)	• Study of Clouds and gases using the spectroscopic and polarimetric measurements in NIR band
6.	Solar occultation photometry for vertical profiling of Aerosols and thin clouds in Venusian atmosphere (SPAV)	• Altitude variation of aerosol abundance in the mesosphere, including spatial variations.
7.	Retarding Potential Analyser (RPA) for the observation of Venusian ionosphere	• Study the Venusian ionosphere and Exosphere: its composition and dynamics

		• Systematic measurements of ionospheric structure during daytime and night time to understand the prevailing dynamics and causative mechanisms • Understand the solar wind interaction with Venusian ionosphere
8.	Radio Anatomy of Venus Ionosphere (RAVI)	• To study the Venusian Ionosphere and atmosphere
9.	Venus Ionospheric and Solar Wind particle AnalySer (VISWAS)	• To study the loss of Venus upper atmosphere/ionosphere (ions as well as non-thermal neutrals) and the role of different escape mechanisms. • To study the characteristics of plasma in different plasma boundaries. Role of electrons (from the magnetosphere or shocked solar wind) for generating the ionosphere and its energetics
10	Venus Ionospheric Plasma wave detector (VIPER) – Flux Gate Magnetometer (FGM)	• To sample the magnetic environment around Venus.
11	Venus Radiation environment monitor (VeRad)	• To measure the influence of high energy particles on the Venus atmosphere and the radiation levels.
12	Venus InfraRed Atmospheric gases Linker (VIRAL)	• To retrieve the vertical profiles of atmospheric density, temperature Carbon dioxide, CO and HDO/H_2O above the cloud top • Measurements of H_2O and SO_2 in and above the clouds as well as particulate components • To measure mesospheric wind field through direct Doppler measurements