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BSCPHEN 201

**Second Semester Open Elective (NEP 2020) Examination, September 2022
(2021-22 Batch Onwards)**

PHYSICS

Astronomy and Space Mission

Time : 2 Hours

Max. Marks : 60

Instructions : 1) Answer questions from **all** Units.
2) **Scientific** calculators are **allowed**.

UNIT – 1

1. a) What are the Zodiac constellations ? Explain the importance of Zodiac constellations. 5
- b) What are epicycles ? Explain the role of epicycles in Geocentric theory. 7
- c) Explain the ptolemaic geocentric model. Describe how the geocentric model accounted for Retrograde motion. 8

OR

2. a) Define the following terms : Azimuth, Altitude, Ecliptic, Light Year, Parsec. 5
- b) Explain how Galileo proved Heliocentric theory using his observations. 7
- c) Explain how angles can be estimated using our hands. 8

UNIT – 2

3. a) Write a short note on comets. 5
- b) What are various types of solar eclipses ? Explain the alignments. 7
- c) What are solstices and equinox ? Explain what causes seasons on earth. 8

OR

4. a) What are Umbra and Penumbra ? Explain the types of Lunar Eclipses and the role of Umbra and Penumbra in these eclipses. 5
- b) Write a short note on the Moons of Jupiter and Rings of Saturn. 7
- c) Write a short note on the Sun and Sunspots. 8

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**UNIT – 3**

5. a) Write a short note on NAVIC. **5**
- b) Write a note on earth observation satellites and experimental satellites. **7**
- c) Explain the physics behind the working of rockets. What are the various types of rockets ? Also mention the role of Boosters in rocket dynamics and list out the applications. **8**

OR

6. a) What are the various space agencies across the world ? Introduce any 5 space agencies. **5**
- b) Write a note on communication satellites and their applications. **7**
- c) Describe the history of Indian satellite programs. Explain the various IRS and INSAT series satellites and their functions. **8**
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