

**M.Sc. (Physics) Semester - 2 (CBCS) Examination**  
**August/September -2020 [NEW COURSE]**  
**Space Physics (CORE)**

Time: 2:00 Hours

Marks: 56

**Instructions:**

1. Figure to the right indicate marks.
2. There are five questions in the question paper.
3. Answer any four of the following questions.

- Q.1 Answer the following questions in short. (Any Seven) (Each 2 marks) 14**
1. List out different Layers of the Earth's Atmosphere. 2
  2. Give probable chemical composition of the Earth's Atmosphere. 2
  3. What do you mean by Airglow? Explain in brief. 2
  4. What is an ionosphere? Mention importance of ionosphere. 2
  5. What is TEC? Explain in brief How it is measured. 2
  6. Define Scintillation. How it is measured? 2
  7. What are Sunspot numbers and Solar cycle? 2
  8. Give names of important interior regions of the Sun. 2
  9. What is Remote sensing? List two applications of it. 2
  10. Why a GPS is called as an ideal remote sensing system? 2
- Q.2 Answer following questions in detail. ( Any two) (Each 7 marks) 14**
1. Describe different layers of the Earth's Atmosphere in detail. 7
  2. Explain energy budget and thermodynamic consideration of the Earth's atmosphere. 7
  3. What is Photo ionisation? Explain Chapman's theory of photo ionisation and mention about production of different ionosphere layers. 7
- Q.3 Answer the following question as it requires. (each 7 marks) 14**
- a. How solar radiation attenuation occurs while passing through the Earth's atmosphere? Explain radiative transfer and thermal effect solar radiation in detail. 7
  - b. What are loss mechanics of ionosphere chemistry regions? Describe morphology of ionosphere. 7
- OR**
- Q.3 Answer the following question as it requires. (each 7 marks) 14**
- a. Write short note on stratosphere and mesosphere. 7
  - b. What is thermal balance in the Earth's atmosphere? Explain chemistry of middle atmosphere and thermosphere. 7
- Q.4 Answer the following question as it requires. (any two question) (each 7 marks) 14**
1. Write a short note on ground based ionospheric measurement techniques, (i) Ionosondes, (ii) Radars. 7
  2. Explain in detail about rocket and satellite techniques of ionospheric measurements. 7
  3. What is Langmuir probe? Explain in detail how does it measure electron temperature, electron density and electronic potential of a plasma. 7
- Q.5 Answer the following question as it requires. (any two question) (each 7 marks) 14**
1. How does solar flares are different then Coronal Mass Ejection (CME)? Explain CME in detail. 7
  2. Write a short note on Global Positioning System. 7
  3. What are characteristics of real remote sensing system? Explain how does land and geographic information is obtained using it. 7
  4. Write a short note on Earth's Magnetosphere. 7