Reg. No. : ....

Name : ....

Sixth Semester B.Sc. Degree Examination, April 2014
First Degree Programme under CBCSS
PHYSICS
Elective Course
PY 1661.2 : Space Science

Time : 3 Hours   Max. Weight : 30

SECTION – A

This Section contains **four** bunches **each** of **four** questions. Answer **all** questions.
Each bunch carries a weightage of **one**.

I. Choose the correct answer :

1) Mean distance from Earth to Sun is
   a) 1.8×10^5 km   b) 1.5×10^8 km
   c) 1.5×10^8 m   d) 2.5×10^8 km

2) A full cycle for magnetic polarities in Sun is
   a) 11 years   b) 25 years   c) 365 days   d) 22 years

3) Our nearest spiral galaxy is
   a) Milky way   b) Andromeda   c) NGC 2419   d) Canis major dwarf

4) The approximate height of tropopause over equator is
   a) 18 kms   b) 6 km   c) 50 km   d) 0.5 km

II. Name the following :

5) Name the lowest altitude region of Earth's atmosphere.

6) Name the huge clouds at the levels high above the solar surface but well within the corona.

7) Name the radiation belt around the Earth consisting of high energy particles.

8) Give the name of our galaxy.

III. 9) _____ is the thickest over the poles and may nonexistant over the equator.

10) Black central region of a sunspot is known as _____

11) _____ can originate highly energetic particles, which are the solar cosmic rays.

12) _____ is the Chandrashekhar limit.

IV. State whether the following statements are **true** or **false** :

13) Time period of a solar cycle is approximately 11 years.

14) Intense fluctuations of Earth's magnetic field is termed as magnetic storms.

15) The ionosphere is found below the tropopause.

16) Sporadic E may be due to heavy ions deposited at high altitude by meteors.

SECTION – B

Answer **any eight** questions. **Each** question carries a weightage of **one**.

17. What is scale height ?

18. What are protostars ?

19. What is the origin of cosmic rays ?

20. Give an account of expansion of universe.

21. What is the reason for continued existance of the E-layer ?

22. Write and explain the equation of hydrostatic equilibrium for a parcel of air of density ρ, unit cross-sectional area, and thickness dh.

23. Write a note on density variation of Earth's atmosphere with altitude.

24. Briefly describe magnetic field of Earth.

25. Differentiate cosmology and astronomy.

26. What are radio sources in universe ?

27. Give a note on stellar evolution.

28. What do you understand by photon diffusion time ?

SECTION – C

Answer **any five** questions. **Each** question has a weightage of **2**.

29. Describe stratospheric warming.

30. What are the types of galaxies ?

31. Explain Chandrashekhar limit.

32. Give a note on internal pressure of a star.

33. Discuss Dungey's open magnetosphere.

34. Describe the temperature distribution in troposphere.

35. What is the origin of ionospheric hydrogen and helium ?

36. Give an account of disturbed solar wind.

SECTION – D

Answer **any two** questions. **Each** question has a weightage of **4**.

37. Briefly explain the nomenclature and temperature profile of Earth's atmosphere.

38. Describe HR diagram. Give a detailed discussion of evolution of white dwarf, neutron star, black hole and super nova.

39. Give an account of Earth's variable magnetic field. How does solar activity affect Earth's magnetic weather ?

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