

CA-5) Seat No: \_\_\_\_\_

No. of Printed Pages : 2

SARDAR PATEL UNIVERSITY  
Fifth Semester B.Sc. EXAMINATION (NC)

Monday, 16<sup>th</sup> may-2016  
Time: 10:30 am to 1:30 pm  
PHYSICS – US05CPHY06

Astronomy and Astrophysics

N.B: Figures on the right indicate maximum marks.

Total Marks: 70

Q-1. Answer the following multiple choice questions by choosing correct option [10]

- 1 Stellar parallax is a measure of star's \_\_\_\_\_.  
(a) Amplitude (b) Velocity (c) Distance (d) Magnitude
- 2 In the construction of HST \_\_\_\_\_ is specially design to study very faint object at high angular resolution.  
(a) high resolution spectrograph (b) faint object camera  
(c) faint object spectrograph (d) wild field planetary camera
- 3 Mesosphere ranges from \_\_\_\_\_ to \_\_\_\_\_ km above sea level.  
(a) 15 to 25 (b) 1 to 8 (c) 50 to 90 (d) 8 to 15
- 4 Phenomena like sunspot and faculae are observe in the \_\_\_\_\_.  
(a) photosphere (b) chromosphere (c) corona (d) outer atmosphere
- 5 Phenomena like spicules and plages are observed in the \_\_\_\_\_.  
(a) photosphere (b) chromosphere (c) corona (d) outer atmosphere
- 6 In an interacting binary system the Roche lobes associated with phenomenon of \_\_\_\_\_.  
(a) Mass transfer (b) Stellar luminosity  
(c) Stellar magnetic field (d) none of these
- 7 Which of following binary star identify on the basis of their absorption lines?  
(a) Eclipsing (b) Visual (c) Spectroscopic (d) None of these
- 8 Magnetic field in the galaxy was proposed by Enrico Fermi to explain the confinement of \_\_\_\_\_.  
(a) x-rays (b)  $\beta$ -rays (c)  $\gamma$ -rays (d) cosmic rays
- 9 About 90% of the cosmic rays nuclei are \_\_\_\_\_.  
(a) electrons (b) protons (c) neutrons (d) deuterons
- 10 Magnetic field in the galaxy was proposed by Enrico Fermi to explain the confinement of \_\_\_\_\_.  
(a) cosmic rays (b) alpha rays (c) beta rays (d) gamma rays

①

(P.T.O.)

- Q-2. Give short answers to the following questions. (Attempt any Ten) [20]
- 1 What is diffracted image of a star?
  - 2 Define the following terms :  
(1) optical telescope (2) radio telescope
  - 3 What is radiometric magnitude?
  - 4 Define following.  
(a) Photospheric granulation (b) Spicules (c) Faculae (d) plages
  - 5 What is the solar neutrino puzzle?
  - 6 Define solar wind.
  - 7 Write note on optical double star and binary star.
  - 8 Draw neat sketch of the H-R diagram with proper notation.
  - 9 Write a note on Sirius.
  - 10 What are cosmic rays?
  - 11 List out different parts of galaxy.
  - 12 Draw the hyperfine structure of ground level of hydrogen atom.
- Q-3. (a) Briefly explain stellar motion of a star. [06]  
(b) Explain photographic photometry. [04]
- OR**
- Q-3 (a) Write a short note on Hubble space telescope. [06]  
(b) What is a telescope? Explain radio telescope in detail. [04]
- Q-4 (a) Write a detail note on chromosphere. [05]  
(b) Write a detail note on "The solar magnetic field" [05]
- OR**
- Q-4 (a) List out different phenomena occur in the photosphere. Discuss any one in detail. [05]  
Write a detail note on "The sun". [05]
- Q-5 (a) Derive mass-luminosity relation. [10]
- OR**
- Q-5 (a) Give detail classification of binary star. [10]
- Q-6 (a) Explain the radio observation of galaxy at 21-cm wavelength. [06]  
(b) Write a short note on cosmic rays [04]
- OR**
- Q-6 (a) Write a note on general structure of the galaxy. [06]  
(b) What is a rotational curve of galaxy [04]

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