

[61]

SARDAR PATEL UNIVERSITY
B. Sc, 5th Semester (Under CBCS NC)
Monday, 16th April 2018
Session: Evening, Time: 02:00 PM to 05:00 PM
Subject Code: (PHYSICS) US05CPHY06
Course Title: Astronomy and Astrophysics

Max Marks: 70

- NB: i All symbols have their usual meaning.
ii Figure at the right side of the question indicates full marks.

Que.1 Write correct answer for each of the following MCQs. [10]

- 1 Diffraction grating is a surface consisting of large number of finely placed closed _____ lines.
 - a) Transmission
 - b) Equidistance
 - c) Dispersion
 - d) None of above
- 2 Photometry is used for recording the _____ of stars and heavenly objects.
 - a) Image
 - b) Brightness
 - c) Spectrum
 - d) Photograph
- 3 In 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
- 4 _____ prominence is not a type of prominence.
 - a) Quiescent
 - b) Eruptive
 - c) Inactive
 - d) Sunspot type
- 5 _____ is not a type of binary stars.
 - a) Eclipsing
 - b) Spectroscopic
 - c) Visual
 - d) Spectrometric
- 6 The thermal ionization process in stars does not depend on _____.
 - a) Mass
 - b) Density
 - c) Pressure
 - d) Temperature
- 7 _____ is a multiple star system.
 - a) Eclipsing
 - b) Spectroscopic
 - c) Trapezium
 - d) none of these
- 8 The principal 'actors' of highly interesting galactic drama are _____.
 - a) Galaxies
 - b) Comets
 - c) Stars
 - d) Cosmic rays
- 9 The line absorption is produced by the interstellar gas in the spectra of distant _____.
 - a) Hot stars
 - b) Galaxies
 - c) Granules
 - d) Clusters
- 10 Positive radial velocities are observed in stars at _____ galactic longitudes.
 - a) 90° and 270°
 - b) 45° and 255°
 - c) 135°
 - d) 315°

Que. 2 Write answers of any ten questions in brief.

[20]

- 1 What is f/a ratio of telescope?
- 2 Define the terms :(1) optical telescope (2) radio telescope
- 3 What are radiometric magnitudes?
- 4 What is a reversing layer?
- 5 Define Plages and Filaments.
- 6 Define solar wind.
- 7 Write notes on optical double stars and binary stars.
- 8 Draw light curves from different binaries.
- 9 Write a note on Sirius.
- 10 Define 'hyperfine splitting'.
- 11 Draw a diagram explaining the structure of our galaxy.
- 12 What is REDDENING EFFECT of distant stars in the plane of galaxy?

Que. 3 [A] What is an optical telescope? Discuss various factors of optical telescope. [06]
 [B] Explain photographic photometry. [04]

OR

Que. 3 [A] Write short notes on earth's atmosphere and electromagnetic radiation. [06]
 [B] Explain only construction and working of slit spectrograph and slit less spectrograph. [04]

Que. 4 [A] Write a detail note on chromosphere. [06]
 [B] What are solar flares? Explain this phenomenon in detail. [04]

OR

Que. 4 [A] Write a note on 11 year cycle of sunspots. [06]
 [B] How are various forms of solar activities related to sun's magnetic field? [04]

Que. 5 Explain in detail H-R diagram of stars. [10]

OR

Que. 5 Derive mass luminosity relation. [10]

Que. 6 [A] Explain in brief the radio observation of galaxy at 21-cm wavelength. [06]
 [B] What is a rotational curve of galaxy? [04]

OR

Que. 6 [A] Enlist the rotational parameters of galaxy and discuss them. [06]
 [B] Write a short note on 'cosmic rays'. [04]

