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SARDAR PATEL UNIVERSITY

Fifth Semester B. Sc. Examination
Under CBCS

Subject: PHYSICS [US05CPHY06]
[Astronomy and Astrophysics]

Date: 22-11-2019 (Friday)

Time: 10:00 AM to 01:00 PM

[Maximum marks: 70]

Instructions: - i. Attempt all questions.
ii. Figure on right hand side indicates full marks of that question.

Q - 1. Answer the following multiple choice questions. (10)

- 1 The refracting telescope, the f – ratio is generallythan that in reflecting telescopes.
(a) smaller (b) much smaller
(c) higher (d) much higher
- 2 The brightness of the image depends onof the telescope.
(a) aperture (b) focal length
(c) aperture and focal length both (d) Eye piece
- 3 In the construction of Hubble Space Telescope (HST)is specially design to study very faint object at high angular resolution.
(a) High resolution spectrograph (b) Faint object spectrograph
(c) Faint object camera (d) Wide field planetary camera
- 4 The dark central region of developed sunspot is called
(a) umbra (b) Penumbra
(c) nucleus (d) All of above
- 5 Theconsist of individual spots or spots with similar magnetic polarity.
(a) unipolar groups (b) bipolar groups
(c) complex spot groups (d) none of above
- 6 Solar flares are classified according to theirand the areas covered by them.
(a) brightness (b) darkness
(c) length (d) Magnetic field
- 7is a triple star system having a close pair 86a.u.
(a) Castor (b) Trapezium
(c) Algol (d) None of above
- 8 Absolute magnitude verses spectral type for all stars represented by.....diagram.
(a) B-V diagram (b) C-M diagram
(c) H-R diagram (d) M-L diagram
- 9 The velocity dispersion of the gas cloud is the.....over the entire disc of the Galaxy for radio observation of Galaxy at 21-cm wavelength.
(a) same (b) different
(c) inverse (d) Proportional
- 10 The brightest section of the milky way is it'slying between the two constellations Argo and centaurs.
(a) Eastern half (b) Western half
(c) Northern half (d) Southern half

(1)

(PTO)

Q-2. Answer the following short questions (Any ten).

[20]

- [1] Explain in brief: Focal ratio.
- [2] Give the fundamental principle of photographic photometry.
- [3] What is charge - coupled Device? – Explain it.
- [4] Write a short note on-‘Spicules.’
- [5] Explain in short: ‘Eruptive Prominences.’
- [6] What is Solar wind?
- [7] Explain in brief – ‘Optically double stars.’
- [8] State the reason behind mass transfer between the components of close Binary system?
- [9] What are the intrinsic variables? Explain in brief.
- [10] Explain differential Galactic rotation in short.
- [11] What is the Galactic Halo?
- [12] Name the three main parts of Galaxy.

Q-3 Discuss the types of reflecting telescopes providing suitable figures.

[10]

OR

**Q-3 Write a notes on: (i) Photoelectric Photometry and
(ii) Spectrophotometry**

[10]

Q-4 (a) What is photosphere? Discuss any one phenomena occur in Photosphere in detail.

[06]

(b) Explain in short: ‘Sunspot type Prominences.’

[04]

OR

Q-4 (a) Write a note on Solar granulation.

[06]

(b) What is Solar wind? – explain it.

[04]

Q-5 (a) Explain in detail: Eclipsing binary providing schematic lighter curve.

[06]

(b) Discuss in short: Hertzsprung-Russell (H-R) diagram.

[04]

OR

Q-5 (a) Draw and discuss: ‘Mass – Luminosity relation.’

[06]

(b) Explain multiple stars in brief.

[04]

Q-6 (a) Discuss how to determine the rotation parameters in the solar neighbourhood.

[06]

(b) Write any two principal information points provided by 21-cm observation of galaxy.

[04]

OR

Q-6 (a) Write a detail note on cosmic rays.

[06]

(b) Write two important properties of synchrotron radiation.

[04]

— X —

(2)