



Register Number:

Date:

ST. JOSEPH'S COLLEGE (AUTONOMOUS), BANGALORE-27

PG OPEN ELECTIVE - III SEMESTER

SEMESTER EXAMINATION: OCTOBER 2019

PHOE 9418 – ASTROPHYSICS

Time- 1½hrs

Max Marks-35

This paper contains TWO printed pages and 3 parts

PART – A

Answer any TEN. Each question carries ONE mark.

[1 x 10 = 10]

1. How long does it take for the Earth to complete one orbit around the Sun
 - a. One month
 - b. One day
 - c. One year
 - d. The time varies significantly depending on the orbit.
2. Which among these is not a way of arriving at knowledge?
 - a. Intuition
 - b. Deduction
 - c. Induction
 - d. Preservation
3. About how many stars are visible to the naked eye on a clear dark night away from city lights?
 - a. Several million
 - b. A few dozen
 - c. A few hundred billion
 - d. A couple of thousands.
4. Suppose you built a scale-model atom in which the nucleus is the size of a tennis ball. About how far would the cloud of electrons extend?
 - a. A few meters
 - b. Several centimeters
 - c. To the moon
 - d. Several Kilometers
5. Which Space telescope is planned to be the successor of the Hubble Space Telescope?
 - a. Chandra X ray Observatory
 - b. Spitzer Space Telescope
 - c. James Webb telescope
 - d. Herschel Space Observatory
6. Which one of the following is not a source of infrared radiation?
 - a. Human bodies
 - b. light bulbs
 - c. Books
 - d. Sun
7. Which of the following is an instrument used for separating different color wavelengths from each other?
 - a. Microscopes
 - b. Telescopes
 - c. Spectroscopes
 - d. Stethoscopes
8. Wave which cannot travel in vacuum is _____
 - a. X-rays
 - b. Infrasonic
 - c. Ultraviolet
 - d. Radio waves
9. What is the diameter of the primary mirror of our college telescope
 - a. 6 inch
 - b. 12 inch
 - c. 8 inch
 - d. 10 inch
10. The incoming infrared radiation from space is absorbed by _____ in the Earth's Atmosphere
 - a. Argon
 - b. Nitrogen
 - c. Water vapor
 - d. Oxygen
11. Which among these is a not a Trans-Neptunian object?
 - a. Sedna
 - b. Pluto
 - c. Ganymede
 - d. Charon

12. An object whose gravitational field is so strong that light cannot escape is called _____
- a. Dark matter
 - b. neutron star
 - c. Wormhole
 - d. black hole
13. What does creation ex-Nihilo mean?
- a. Creation out of something
 - b. Creation is everything
 - c. Creation is nothing
 - d. Creation out of nothing
14. If one see lines with many colors through spectrometer, what kind of spectrum is one looking at
- a. Discrete emission spectrum
 - b. Discrete absorption spectrum
 - c. Continuous emission spectrum
 - d. continuous absorption spectrum
15. What tragic event in 2003 halted the US involvement with the International Space station
- a. Hurricane Katrina
 - b. Tsunami
 - c. Columbia space shuttle crash
 - d. Financial downfall

PART – B

Answer any THREE QUESTIONS. Each question carries 5 marks.

[3 x 5 = 15]

16. Write a note on the size and distance of cosmological objects.
17. What makes Earth a privileged planet in the vast cosmos?
18. Write a note on how our understanding on the nature of light has evolved through the ages.
19. Briefly explain the birth of Radio Astronomy.
20. What are the different kinds of optical telescopes? Explain them with a diagram.

PART – C

This question carries 10 marks

21. Write in about 300 words how Astronomy has induced a sense of wonder in you.

[1 x 10 = 10]