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Registration number:

**ST. JOSEPH’S COLLEGE (AUTONOMOUS), BENGALURU-27**

**B.Sc. PHYSICS - I SEMESTER**

**SEMESTER EXAMINATION: OCTOBER 2021**

**PH OE1 (NEP) - Physics**

Time- 1 ½ hrs Max Marks-60

This question paper contains 4 printed pages.

Part A

**Answer all the questions. Choose the correct answer.**

1. Name the space probe that has gone into interstellar space beyond solar system?
2. Voyager 1 b) Gemini 1 c) Voyager 2 d) Sputnik
3. 1 A.U. is the distance between \_\_\_\_\_\_\_\_\_\_.
4. the earth and the moon b) the sun and the moo

c) the sun and the end of the solar system d) the earth and the sun

1. How many radiations are there in the electromagnetic spectrum?
2. 4 b) 6 c) 7 d) 8
3. In the geocentric concept of the universe \_\_\_\_ is the centre of the universe.
4. sun b) earth c) The Milky Way galaxy d) black hole
5. Name the radiation that has the longest wavelength?
6. visible light b) microwave c) gamma rays d) radio wave
7. Which radiation is blocked by the atmosphere of earth?
8. radio waves b) visible light c) infrared d) ultra violet
9. Which among the following gases absorbs infrared radiation?
10. nitrogen b) water vapour c) oxygen d) hydrogen`
11. The telescope that can be used for observation during the day is \_\_\_\_\_\_\_ telescope.
12. optical b) reflecting c) radio d) refracting
13. Which one of the following is the disadvantage of reflecting telescopes?
14. primary focus in front of the lens b) low resolving power

c ) less light gathering power d) chromatic aberration

1. Name the space telescope that was launched in 1990 and still in operation?
2. Chandra telescope b) Spitzer telescope c) Hubble space telescope d) Kepler telescope
3. What is the need of multiwavelength astronomy?
4. to reduce the expenditure b) to reduce the work

c) to get a better picture of the universe d) to save time

1. What is the surface temperature of sun?
2. 10,000 K b) 5800 K c) 9000 K d) 20,000 K
3. The luminosity of a star is the energy given out from its surface in \_\_\_\_\_\_\_.
4. one day b) one year c) the total life time of a star d) one second
5. One angstrom is equal to \_\_\_\_
6. 10-9 m b) 10-10 m c) 10-6 m d) 10-8 m
7. The first pulsar was discovered using \_\_\_\_\_\_
8. Gamma rays b) Microwaves c) Radio waves d) Visible light
9. Which is the new window that opened up to observe the universe recently?
10. Radio astronomy b) Gamma ray astronomy c) X-ray astronomy d) gravitational astronomy
11. Which among the following is a Jovian planet?
12. Mars b) Venus c) Jupiter d) Mercury
13. Sunspots are dark regions in the photosphere of sun. Why?
14. low temperature b) high temperature c) strong magnetic field d) low pressure
15. What spectral class of stars is the coolest?
16. O b) B c) M d) G
17. H-R diagram is a plot of \_\_\_ versus surface temperature.
18. spectral class b) colour c) luminosity d) apparent brightness
19. What is the name given to the stars that are situated in the diagonal band of H-R?
20. proto stars b) main sequence stars c) white dwarfs d) super giants
21. In which evolutionary state does a star maintain thermal equilibrium?
22. proto star b) pre main sequence star c) main sequence star d) red giant star
23. Chandrasekhar limit is equivalent to \_\_\_\_\_\_\_\_\_\_\_\_.
24. 1.4 MSun b) 3 MSun c) MSun ` d) 0.5 MSun
25. Direct detection of black holes is difficult because \_\_\_\_\_\_\_\_\_\_\_\_.
26. Black holes are black b) Black holes are far away

c) Escape velocity of black hole > velocity of light d) Black holes are very small

1. Live examples of neutron stars are \_\_\_\_\_\_
2. quasars b) active galactic nucleus c) red giant stars d) pulsars
3. The most luminous stars are having \_\_\_\_\_ life time
4. very short b) very long c) medium d) short or long
5. The violent explosion that happens when massive stars die is known as \_\_\_\_\_\_\_\_.
6. Supernova b) Gamma ray burst c) Nuclear fusion d) Nuclear fission
7. What is there at the centre of the Milky Way galaxy?
8. Quasar b) super massive black hole c) massive neutron star d) massive star
9. What gives evidence for the Big Bang model of the universe?
10. Cosmic rays b) Pulsars c) Black holes d) Hubble’s law
11. What makes up about 27% of the universe?
12. Dark energy b) Visible matter c) Dark matter d) Black holes
13. Who classified the galaxies?
14. Isaac Newton b) Galileo c) Edwin Hubble d) Kepler

1. The Hubble’s law can be used to \_\_\_\_\_\_\_\_\_\_.
2. determine the age of the stars b) determine the distance of an object

c) study the properties of the stars d) study the evolution of the stars

1. According to Hubble’s law the recessional velocity of the galaxy is directly proportional to its \_\_\_\_\_\_\_\_\_\_\_\_\_.
2. distance b) size c) age d) luminosity
3. What happens during lunar eclipse?
4. Moon comes between sun and earth b) Sun comes between earth and moon

c) Moon and earth are on opposite side of sun d) Earth comes between sun and moon

1. Name the highest frequency radiation?
2. Gamma radiation b) Radio waves c) X-ray d) Microwaves
3. Which radiation helps to study the cold regions of space?
4. Visible light b) Ultra violet c) X-ray d) Infrared
5. Which astronomy can be used to observe the sky during day time from the earth?
6. Optical astronomy b) Gamma ray astronomy c) Radio astronomy d) Infrared astronomy
7. Name an orbiting telescope that detects x-ray sources?
8. Hubble space telescope b) Voyager 1 c) Chandra Telescope d) Voyager 2
9. Gravitational waves are ripples in the \_\_\_\_\_\_\_\_\_\_.
10. inter stellar space b) space-time fabric c) black holes d) atmosphere
11. What are the terrestrial planets made of?
12. Gas b) rocky material c) ice d) plasma
13. The innermost layer of sun is \_\_\_\_\_\_\_\_\_\_\_.
14. Core b) Photosphere c) Chromosphere d) Corona
15. Name the space probe launched recently by NASA to study the origin of the universe?
16. HST b) Spitzer space telescope c) Kepler d) James Webb space telescope
17. Spectral absorption features are the basis of the classification of \_\_\_\_\_.
18. Galaxies b) stars c) planets d) black holes
19. Which evolutionary state of the star, nuclear fusion happens in the outer layers?
20. white dwarf b) main sequence star c) red giant star d) neutron star
21. The total life time of sun is about \_\_\_\_\_\_\_\_\_ billion years.
22. 100 b) 4 c) 10 d) 5
23. New stars are formed in the \_\_\_\_\_ of the Milky Way galaxy.
24. Disk b) halo c) globular cluster d) centre
25. The age of the universe can be determined using \_\_\_\_\_.
26. Hubble’s law b) Gravitational law c) Kepler’s law d) Gravitational law
27. Cosmic microwave background radiation gives evidence for \_\_\_\_\_\_\_\_.
28. The existence of black hole b) Big Bang theory c) Kepler’s laws d) Newton’s gravitational law
29. The faster expansion rate of the universe is due to \_\_\_\_\_\_\_\_\_\_\_\_.
30. dark matter b) black hole c) dark energy d) white hole
31. If 1.4 MSun < Mcore < 3 MSun, then the star after death will become a \_\_\_\_.
32. neutron star b) black hole c) white dwarf d) black dwarf
33. The white dwarfs are positioned in the \_\_\_\_\_\_\_\_ of the H.R. diagram.
34. right top b) right bottom c) left bottom d) left top
35. Star formation begins with the condensation of \_\_\_\_\_\_\_\_\_\_\_.
36. Protostar b) cold molecular clouds c) planetary nebula d) white dwarfs
37. The properties of stars can be studied using \_\_\_\_\_\_\_\_.
38. Henry Draper Catalogue b) space probes c) H.R. diagram d) Hubble space telescope
39. Corona is visible only during \_\_\_\_\_\_\_\_\_\_.
40. total solar eclipse b) total lunar eclipse c) partial lunar eclipse d) partial solar eclipse
41. One nano meter is \_\_\_\_\_\_\_\_\_\_\_.
42. 10-10 m b) 10-9 m c) 10-6 m d) 10-7 m
43. Name the least luminous star in the spectral class G?
44. G1 b) G9 c) G0 d) G8
45. What is the colour of coolest star?
46. blue b) white c) red d) yellow
47. What type of galaxy will have a disk in it?
48. elliptical galaxy b) radio galaxy c) lenticular galaxy d) spiral galaxy
49. What do astronomers call the increase in wavelength of light from an object that moves away from them?
50. blue shift b) doppler shift c) red shift d) nova
51. When the mass of core of the red giant > 3 times the mass of the sun, the star becomes \_\_\_\_.
52. White dwarf b) neutron star c) black hole d) white hole