Test Paper

1. What is a red giant?

A. Gas and dust that did not reach a high enough temperature to initiate fusion

B. The end result of the explosion of a white dwarf

C. A small body mainly composed of ice and dust that orbits around a star

D. A normal star that has evolved into a very large, reddish star

2. What is a planetary nebula?

A. Clouds of dust in the space between stars

B. The ejected envelope of a red giant star

C. A group of stars that are physically near each other in space

D. Galaxies close to one another and affecting one another gravitationally, behaving as one unit

3. What is the main consequence of nuclear fusion?

A. Radiation pressure increasing.

B. Gravitational contraction increasing.

C. Star getting cooler and dimmer.

D. Energy is being used up indefinitely.

4. What is a cepheid variable?

A. A type of black hole

B. A star of variable luminosity

C. A type of planetary nebula

D. A cluster of galaxies

5. What is a Cepheid variable?

A. A main-sequence star undergoing nuclear fusion

B. A star made entirely of neutrons

C. A star of variable luminosity

D. A very small star with low temperature

6. What is a neutron star?

A. The end result of the explosion of a red supergiant

B. A star made entirely of neutrons

C. The ejected envelope of a red giant star

D. A normal star undergoing nuclear fusion

7. What is a white dwarf?

A. A small, dense star made up entirely of neutrons

B. The remnant of a white dwarf after it has cooled down

C. The ejected envelope of a red giant star

D. A normal star undergoing nuclear fusion

8. What is a supernova (Type II)?

A. The explosion of a white dwarf due to accretion

B. The fusion of hydrogen into helium in a main-sequence star

C. The explosion of a red supergiant star

D. The collision of two stars

9. What is a main-sequence star?

A. The ejected envelope of a red giant star

B. A type of star that is undergoing nuclear fusion of hydrogen into helium

C. A very small star (a few tens of kilometers in diameter) and very dense, consisting almost entirely of neutrons

D. A small body mainly composed of ice and dust that orbits around a star

10. What is a brown dwarf?

A. A star that has run out of fuel

B. A star that is undergoing nuclear fusion of hydrogen into helium

C. Gas and dust that did not reach a high enough temperature to initiate fusion

D. A very small star with low temperature

11. What is the unit of apparent brightness?

A. Watts per metre squared.

B. Joules per metre squared.

C. Kelvin per metre squared.

D. Candela per metre squared.

12. What is a main-sequence star?

A. A star that has run out of fuel

B. A star that is undergoing nuclear fusion of hydrogen into helium

C. A star that is about to explode

D. A star that is very small and has low temperature

13. What is a brown dwarf?

A. A small, dense star made up entirely of neutrons

B. A cloud of dust and gas between stars

C. A star that has exhausted all of its nuclear fuel

D. Gas and dust that did not reach a high enough temperature to initiate fusion

14. What is a galaxy?

A. A collection of planets

B. A collection of stars

C. A collection of asteroids

D. A collection of comets

15. Which of the following is not a type of nebula?

A. Planetary Nebula

B. Stellar Nebula

C. Reflection Nebula

D. Irregular Nebula

16. What is a supernova (Type Ia)?

A. The explosion of a white dwarf that has accreted mass from a companion star exceeding its stability limit.

B. The explosion of a red supergiant star.

C. The end result of the explosion of a red giant.

D. A small, dense star in which no nuclear reactions take place.

17. Which of the following is the correct description of a star?

A. A celestial object that emits light through nuclear fusion reactions in its core

B. A planet-like object that orbits around a star

C. A type of planet that emits its own light

D. A cloud of interstellar gas and dust

18. What is a neutron star?

A. The ejected envelope of a red giant star

B. The end result of the explosion of a white dwarf

C. A star consisting almost entirely of neutrons. The neutrons form a superfluid around a core of immense pressure and density.

D. A very large, reddish star

19. What is a cluster of galaxies?

A. A collection of a very large number of stars that mutually attract one another through the gravitational force and stay together

B. Galaxies close to one another and affecting one another gravitationally, behaving as one unit

C. A group of stars that are physically near each other in space, created by the collapse of a single gas cloud

D. Clouds of ‘dust’, i.e. compounds of carbon, oxygen, silicon and metals, as well as molecular hydrogen, in the space in between stars

20. What is a main-sequence star?

A. A small star with low temperature, reddish in colour.

B. A star that is undergoing nuclear fusion.

C. Gas and dust that did not reach a high enough temperature to initiate fusion.

D. A normal star that is undergoing nuclear fusion of hydrogen into helium.

21. What is a cepheid variable?

A. A type of nebula

B. A type of comet

C. A star with variable luminosity that varies in brightness in a well-defined pattern

D. A type of cluster of galaxies

22. Which statement best justifies the existence of dark matter?

A. It is a singularity in space time.

B. It is composed of gases (mainly hydrogen and helium) and dust grains (silicates, carbon and iron) filling the space between stars.

C. Its existence is inferred from techniques other than direct visual observation.

D. It is a collection of a very large number of stars mutually attracting one another through the gravitational force.

23. Which of the following objects is made up mainly of ice and dust?

A. Galaxy

B. Black hole

C. Nebula

D. Comet

24. What is a planetary nebula?

A. The end result of the explosion of a red giant.

B. The ejected envelope of a red giant star.

C. A star of variable luminosity.

D. The explosion of a white dwarf that has accreted mass from a companion star exceeding its stability limit.

25. What is a comet?

A. A small planet-like object that orbits around a star

B. A cloud of interstellar gas and dust

C. A massive ball of gas and dust held together by its own gravity

D. A small body mainly composed of ice and dust that orbits around a star

26. What is a black hole?

A. A type of galaxy in which most of the stars are very old and have mostly red colours.

B. A singularity in space-time that is the end result of the evolution of a very massive star.

C. A star that has exhausted its fuel and is in the process of burning helium.

D. A star that has exploded as a supernova.

27. Which statement best defines a binary star?

A. A star consisting almost entirely of neutrons.

B. Two stars orbiting a common centre.

C. A remnant of a white dwarf after it has cooled down.

D. A singularity in spacetime.

28. What is a cluster of galaxies?

A. Galaxies close to one another and affecting one another gravitationally, behaving as one unit.

B. Clouds of ‘dust’, i.e. compounds of carbon, oxygen, silicon and metals, as well as molecular hydrogen, in the space in between stars.

C. A normal star that is undergoing nuclear fusion of hydrogen into helium.

D. The ejected envelope of a red giant star.

29. What is dark matter?

A. Matter in galaxies and clusters of galaxies that is too cold to radiate

B. Gases and dust filling the space between stars

C. A star that is undergoing nuclear fusion of hydrogen into helium

D. A singularity in space time

30. What is the purpose of nuclear fusion in a star?

A. To keep the star hot and radiation pressure high enough to oppose further gravitational contraction while providing energy that the star radiates into space

B. To cause the star to explode as a supernova

C. To create a planetary nebula

D. To create a neutron star