

2020 SSSS

R4TS test

Name- _____

Date - _____



- 1) When large galaxies of similar size come together, they become giant _____ galaxies.
 - a) Barred spiral
 - b) Spiral
 - c) Elliptical
 - d) Irregular
- 2) What attribute does a star's lifespan depend on ?
 - a) temperature
 - b) luminosity
 - c) mass
 - d) None of the above
- 3) If a core that contains 1.44 to 3 solar masses collapse, which process stops it from total collapse ?
 - a) Neutron degeneracy pressure
 - b) Gravity
 - c) Electron degeneracy pressure
 - d) All of the above
- 4) What is a difference of Neutron degeneracy pressure and Electron degeneracy pressure ?
 - a) Neutron degeneracy pressure is higher
 - b) Electron degeneracy pressure is higher
 - c) There is no difference
 - d) None of the above
- 5) The upper limit of neutron star mass is _____ .
 - a) 50
 - b) unknown
 - c) 25
 - d) None of the above

- 6) What force causes a cloud of dust and gas to collapse in the process of forming a star?
 - a) weak nuclear force
 - b) gravity
 - c) strong nuclear force
 - d) None of the above
- 7) What is the heaviest element low mass stars can fuse to ?
 - a) Iron
 - b) carbon
 - c) Hydrogen
 - d) None of the above
- 8) What is the highest element high mass stars can fuse to ?
 - a) Iron
 - b) carbon
 - c) Hydrogen
 - d) None of the above
- 9) On a HR Diagram what is plotted on the y axis ?
 - a) Luminosity
 - b) absolute magnitude
 - c) apparent magnitude
 - d) Both A and B
- 10) On a HR Diagram what is plotted on the x axis ?
 - a) Spectral class
 - b) Luminosity
 - c) apparent magnitude
 - d) Both A and C
- 11) Why is the lifespan of a high mass star shorter than the lifespan of a low mass star ?
- 12) Define Apparent Magnitude.
- 13) Define Absolute Magnitude.
- 14) If a core with a solar mass greater than 3 collapses what is the result ?
 - a) A black hole
 - b) A planetary Nebula
 - c) A white dwarf
 - d) None of the above

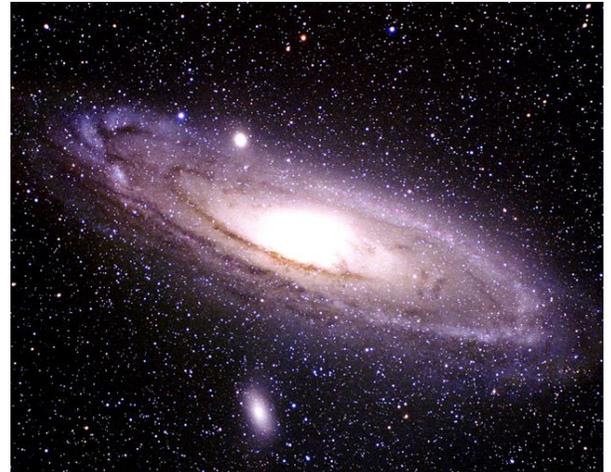
15) Identify the type of galaxy in the picture on the right.



16) Identify the type of galaxy in the picture on the right.



17) Identify the type of galaxy in the picture on the right



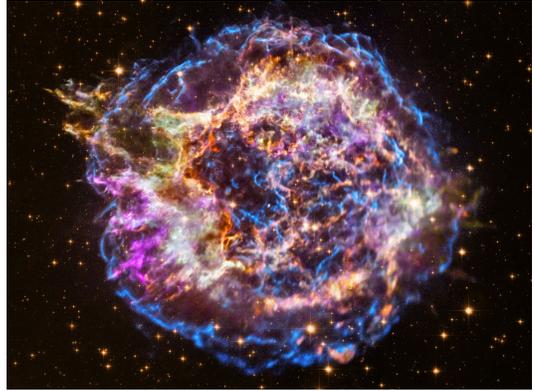
18) Identify the type of galaxy in the picture on the right



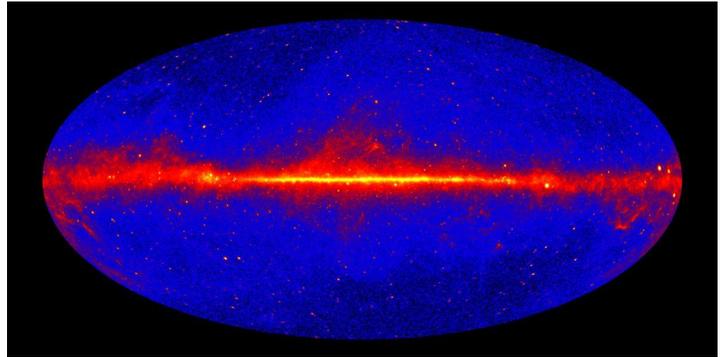
19) Which telescope is the picture on the right taken from ?



20) Which telescope is the picture on the right taken from ?



21) Which telescope is the picture on the right taken from ?



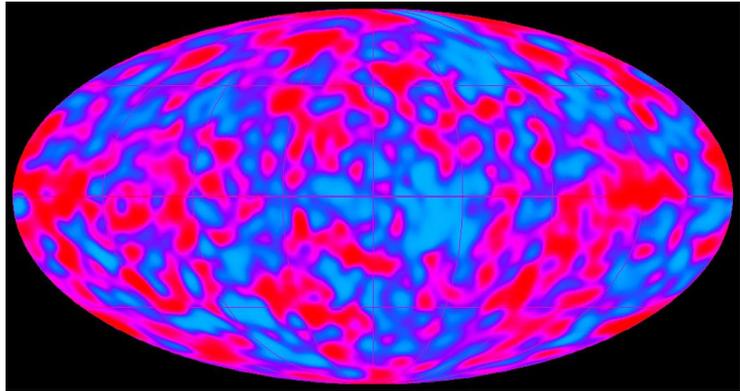
22) Which telescope is the picture on the right taken from ?



23) Which telescope is the picture on the right taken from ?

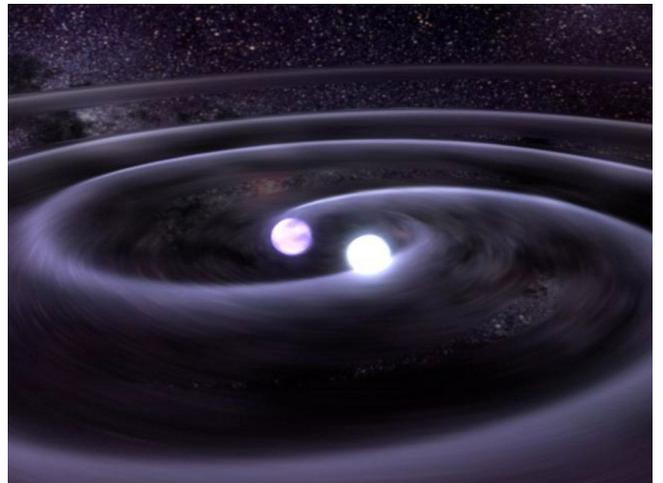


24) Which telescope is the picture on the right taken from ?



- 25) What part of the electromagnetic spectrum does the Alma telescope use ?
- a) Gamma rays
 - b) Radio waves
 - c) Microwaves
 - d) None of the above
- 26) What part of the electromagnetic spectrum does the Chandra telescope use ?
- a) Radio waves
 - b) X - rays
 - c) UV rays
 - d) visible light
- 27) What part of the electromagnetic spectrum does the Spitzer Space telescope use ?
- a) Infrared rays
 - b) UV rays
 - c) Radio waves
 - d) X- rays
- 28) What part of the electromagnetic spectrum does the EUVE telescope use ?
- a) X -rays
 - b) Microwaves
 - c) Visible light
 - d) UV rays
- 29) What happens when a low mass star is depleted of hydrogen ?
- 30) What happens when a high mass star is depleted of hydrogen ?
It becomes a red supergiant.
- 31) Lower mass stars fuse Hydrogen to Helium using the CNO cycle.
- a) True
 - b) False
- 32) The CNO cycle uses Carbon, Nitrogen, and Oxygen.
- a) True
 - b) False
- Pg 5

- 33) High mass stars also experience Helium flash.
a) True
b) false
- 34) Neutron stars have a mass of about 1.4 times our sun.
a) True
b) False
- 35) The sun is a yellow dwarf.
a) True
b) False
- 36) The spectral sequence of stars runs _____ .
a) FGKOMAB
b) KMOGFBA
c) ABFGKMO
d) OBAFGKM
- 37) What is the sun's spectral type?
a) G2V
b) G0V
c) G3V
d) None of the above
- 38) What do red dwarfs with a solar mass of about 0.25 evolve to ?
a) A red giant
b) A Red supergiant
c) A neutron star
d) None of the above
- 39) What color are Class O stars ?
a) Purple
b) Blue
c) Orange
d) Yellow
- 40) What type of celestial object is in the picture on the right ?



Directions for 41 - 48 , match each type of star to its Yerkes Spectral Classification

- | | |
|--------------------|-----------------------|
| 41) Type Ia _____ | A) Bright Giants |
| 42) Type Ib _____ | B) White Dwarf |
| 43) Type II _____ | C) Bright Supergiants |
| 44) Type III _____ | D) Main Sequence |
| 45) Type IV _____ | E) Normal Supergiants |
| 46) Type V _____ | F) Normal Giants |
| 47) Type VI _____ | G) Sub-Giants |
| 48) Type VII _____ | H) Sub- Dwarf |

49) If Star A and Star B has the same mass but Star A has a higher temperature, which star has a higher luminosity?

- a) Star A
- b) Star B

50) Which constellation is visible all year round.

- a) Ursa Major
- b) scorpius
- c) Orion
- d) None of the above

51) How many stars do open clusters have ?

- a) A few hundred
- b) A few thousand
- c) A few million
- d) All of the above

52) Type Ia supernovae almost always have the same absolute magnitude.

- a) True
- b) False

53) Two stars with the same temperature always have the same luminosity.

- a) True
- b) False

54) In the northern hemisphere, during the winter the constellation scorpius is visible

- a) True
- b) False

55) Polaris is known as the north star.

- a) True
- b) False

56) Globular clusters have diameters of up to 1000 light years.

- a) True

Pg 7 b) False

57) Vega is a type K star

- a) True
- b) False

58) About 90% of stars in the Universe are Main sequence stars?

- a) True
- b) False

59) Identify the celestial object to the right



60) Which constellation is it part of ?

61) Identify another celestial object in the same constellation

62) Identify the celestial object to the right



63) Which constellation is it part of ?

64) Identify another celestial object in the same constellation

65) Identify the celestial object to the right



66) Which constellation is it part of ?

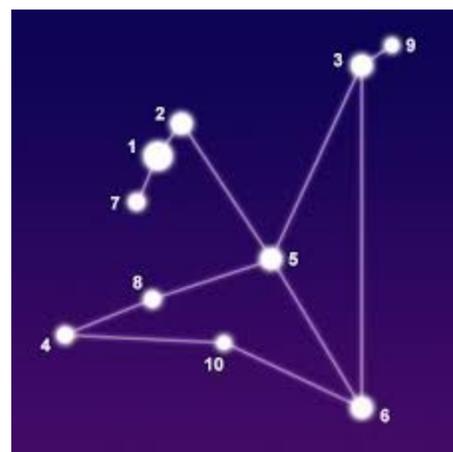
67) Identify another celestial object in the same constellation

68) What constellation is on the right?



69) What animal is associated with this constellation?

70) Which constellation is on the right?



71) What animal is associated with this constellation?

72) What is another name for M104 ?

73) A star has a luminosity of 5.8×10^{35} and is 2.5×10^{20} m away from Earth, what is its apparent brightness ?

74) A star is 0.5 parsecs away from earth, what is its Parallax angle in mas (milliarcsecond) ?

75) A star with an apparent magnitude of 76 is 10^9 megaparsecs away. What is the absolute magnitude of this star ?