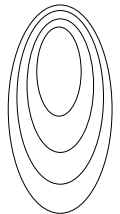


PART A: MULTIPLE CHOICE (9 MARKS)

Choose the best response in each case and place your answer in the appropriate space on your answer sheet.

- Which galaxy classification does not belong?
 - irregular
 - spiral
 - regular
- Which of the energies below does not belong in the electromagnetic spectrum?
 - visible light
 - sound waves
 - X rays
- A possible order of events in the evolution of stars is:
 - nebula, fusion, core collapse
 - fusion, nebula, core collapse
 - nebula, core collapse, fusion
- Which star order (farthest to closest) could have the same apparent magnitude.
 - red, yellow, blue
 - yellow, red, blue
 - blue, yellow, red
- ~~In "old age" a large star (~ 10X larger than our Sun) becomes a:~~
 - ~~red giant~~
 - ~~red supergiant~~
 - ~~neither a red giant nor red supergiant~~
- When a very large star (~ 30X larger than our Sun) "dies" it becomes a:
 - white dwarf
 - neutron star
 - black hole
- What force is responsible for bringing together the particles found in space?
 - gravity
 - terrestrial
 - extra-terrestrial
- A possible order of events in the formation of the solar system is:
 - nebula, Sun, planets
 - planets, nebula, Sun
 - nebula, planets, Sun
- What evidence provides the best evidence for the support of the Big Bang theory?
 - blue shift of distant galaxies
 - unexpected radiation coming from all directions in space
 - extra-terrestrials
- The following ripples are observed for an object moving in water. In what direction is it travelling?
 - up
 - down
 - neither up nor down



PART B: MATCH (3 MARKS)

Match the definition from the 1st column to the best term in the 2nd column and place the matching letter in the appropriate space on your answer sheet.

- | | |
|---|-------------------|
| 1. Type of neutron star that emits pulses of very high energy radio waves. | A) black hole |
| 2. Study of the origin and changes of the universe. | B) cosmology |
| 3. A star (~ same size as our Sun or smaller) that becomes larger and redder as it runs out of hydrogen fuel. | C) gravity |
| 4. What a large star (~10X larger than our Sun) becomes when it dies. | D) nebula |
| 5. Force that pulls objects toward each other. | E) neutron star |
| | F) pulsar |
| | G) red giant |
| | H) red supergiant |
| | I) supernova |
| | J) white dwarf |

PART A: MULTIPLE CHOICE (9 MARKS)

1	2	3	4	5	6	7	8	9	10
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PART B: MATCH (3 MARKS)

1	2	3	4	5
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PART C: SHORT ANSWER (20 MARKS)

Answer questions 1 to 5 in the space provided. Answer the remaining questions on the back of this sheet.

- {1} 1. Number the following stages of a star's life in the order in which they occur. ___ neutron star ___ nebula ___ supernova ___ red supergiant
- {1} 2. Which stage above can occur either at the beginning or the end of the life of a star. _____
- {2} 3. State 2 reasons why the task of looking for planets is a very difficult one.
- ① _____
- ② _____
- {4} 4. What 4 pieces of information does the spectrum of a star reveal?
- ① _____
- ② _____
- ③ _____
- ④ _____
- {3} 5. As scientists continue to observe the spectra of stars and galaxies, what do you think they would conclude if they observed the following?
- (a) Red shift was no longer observed for any star or galaxy.

- (b) A shift was observed toward the violet end of the spectrum.

- (c) Red shift continued.

- {3} 6. Explain how looking at the night sky allows scientists to "peer back in time".
- {3} 7. Explain how you could use all the students in your class to act out a model of the expanding universe shortly after the Big Bang.
- {3} 8. The Big Bang theory is not the only way that the origin of the universe has been explained. In the past many cultures have held different beliefs of their own. These beliefs, however, are not the same as scientific theories. Explain why they are NOT the same as scientific theories.