

## PART A: MULTIPLE CHOICE (10 MARKS)

1	2	3	4	5	6	7	8	9	10
c	b	a	c	b	c	a	a	b	a

## PART B: MATCH (5 MARKS)

1	2	3	4	5
F	B	G	E	C

## 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. 4 neutron star 1 nebula 3 supernova 2 red supergiant
- {1} 2. Which stage above can occur either at the beginning or the end of the life of a star. nebula
- {2} 3. State 2 reasons why the task of looking for planets is a very difficult one.
- ① small compared to star
- ② reflect light rather than produce it
- {4} 4. What 4 pieces of information does the spectrum of a star reveal?
- ① what chemical elements make up star
- ② how much of each element the star contains
- ③ the temperature of the star
- ④ which direction the star is moving
- {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.  
universe neither expanding or shrinking (at rest)
- (b) A shift was observed toward the violet end of the spectrum.  
universe shrinking (galaxies moving inward)
- (c) Red shift continued.  
universe still expanding (galaxies moving away)
- {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.

6. Looking at the night sky allows scientists to "peer back in time" because the light we see left the star (planet) years ago. Light is not instantaneous - it has a maximum speed. And the stars we see at night are so far away that it takes light a long time to get here. So by looking at stars thousands or even billions of light-years away, astronomers can look back in time & see what the universe was like when it was much younger.
7. - students stand squished together  
- teacher yells "BANG"  
- students start to move outward in different directions
8. - other beliefs not scientific theories  
- help people understand how the world works  
- cannot be tested, & explored so they cannot be supported or disproved