**Extra Credit Multiple Choice Questions**

Chapter 4 (and closely related)

Note: in all cases one answer is better than all others ...

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**video: Scale of the Earth and Sun**

**Questions**

1. The circumference of the Earth is about:
   a) 4,000 km
   b) 40,000 km
   c) 400,000 km
   d) 4,000,000 km

2. At 1000 km/hr, about how long does it take for a commercial jet airplane to fly around the Earth?
   a) 4 hr
   b) 40 hr
   c) 400 hr
   d) 4000 hr

3. At 1000 km/hr, about how long does it take for a commercial jet airplane to fly around the sun?
   a) 37 days
   b) 93 days
   c) 181 days
   d) 384 days

4. How many times larger is the circumference of the Sun than the circumference of the Earth?
   a) 24 times larger
   b) 109 times larger
   c) 514 times larger
   d) 1100 times larger

5. What is the approximate distance from the Earth to the Sun?
   a) 150 km
   b) 150 thousand km
   c) 150 million km
   d) 150 billion km

6. About how long does it take light to travel from the Sun to the Earth?
   a) 8 seconds
   b) 8 minutes
   c) 8 hours
   d) 8 days

7. About how long would it take a commercial jet plane at 1000 km/hr to fly from the Earth to the Sun?
   a) 17 days
   b) 17 months
   c) 17 years
   d) 17 millennia (1 millennia = 1000 years)

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**video: Earth Formation**

**Questions**

1. How long ago did the planet Earth form?
   a) 4.5 million years ago
   b) 9 million years ago
   c) 4.5 billion years ago
   d) 9 billion years ago

2. Why do we believe that the trigger for the formation of our solar system was a nearby supernova (SN)?
   a) formation of carbon isotopes in the SN match the carbon found on Earth
   b) formation of iron isotopes in the SN match the iron found on Earth
   c) formation of lead isotopes in the SN match the lead found on Earth
   d) formation of uranium isotopes in the SN match the uranium found on Earth
   e) formation of plutonium isotopes in the SN match the plutonium found on Earth

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**video: Scale of the Solar System**

**Questions**

1. What percentage of the mass in the solar system is contained in the Sun (shown written on the "video board")?
   a) 14.13 %
   b) 54.43 %
   c) 72.98 %
   d) 99.86 %
3. Planets form (and grow in size) from the merging of?
   a) asteroids
   b) meteors
   c) planetesimals
   d) proto-planets

4. How does the video suggest that the Moon formed?
   a) A Mars-sized proto-planet hit the Earth and splashed molten material into orbit
   b) The Moon formed in the vicinity of Earth and at the same time as Earth
   c) The Moon was a proto-planet that formed in a highly elliptical orbit and was then captured by the Earth's gravitational pull
   d) The newest evidence suggests that none of the above provide a good explanation

5. From the formation of the Earth, the first 'eon' of time (when Earth's surface was still molten and volcanic) is called the:
   a) Hadean eon
   b) Archean eon
   c) Proterozoic eon
   d) Paleozoic eon

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video: Beginnings of Life

Questions
1. What was one cause of the Late Heavy Bombardment
   a) The orbit of Mars moved inwards which caused asteroid orbits also to move inwards crossing the orbit of the Earth
   b) The orbits of Uranus and Neptune moved outwards which caused asteroid orbits to move inwards crossing the orbit of the Earth
   c) The orbit of the asteroid belt became unstable
   d) Satellites of Jupiter were flung inwards

2. First life on Earth was believed to form about:
   a) 4 to 4.5 billion years ago
   b) 3.8 to 4 billion years ago
   c) 3.5 to 3.8 billion years ago
   d) 3 to 3.5 billion years ago

3. What kind of organisms were present soon after the Late Heavy Bombardment
   a) Dinosaurs
   b) Prokaryotes
   c) Eukaryotes
   d) Organelles

4. Primitive Prokaryotes were organisms that:
   a) were typically uni-cellular
   b) the cells included a nucleus
   c) the cells had no nucleus
   d) a) and b)
   e) a) and c)

5. Primitive Eukaryotes were organisms that:
   a) were typically uni-cellular
   b) the cells included a nucleus
   c) the cells had no nucleus
   d) a) and b)
   e) a) and c)

6. What are modern Prokaryotes?
   a) bacteria
   b) archaea
   c) a) and b)
   d) there are no Prokaryotes today

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video: Ozone Layer and Eukaryotes Show up in the Proterozoic Eon

Questions
1. About how long ago did oxygen begin to accumulate in the ATMOSPHERE?
   a) 2.4 million years ago
   b) 4.8 million years ago
   c) 2.4 billion years ago
   d) 4.8 billion years ago

2. What does "Proterozoic" mean?
   a) ancient life
   b) earlier life
   c) middle life
   d) recent life

3. Which lifeforms were wiped out 2.3 billion years ago during the greatest extinction (oxygen catastrophe) event in history?
   a) anaerobic lifeforms
   b) eukaryotic lifeforms
   c) dinosaur lifeforms
   d) organelle lifeforms
4. Eukaryotic life first formed about:
   a) 3.8 billion years ago
   b) 3.5 billion years ago
   c) 2.8 billion years ago
   d) 2.2 billion years ago

5. The Proterozoic eon is notable in:
   a) first oxygen rich atmosphere
   b) first eukaryotic life forms
   c) first ozone formation in upper atmosphere
   d) all the above

6. When do we think the Earth had its FIRST ice age?
   a) Hadean eon
   b) Archean eon
   c) Proterozoic eon
   d) Paleozoic eon

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