

The University of Western Ontario - Department of Geography
Geography 2090a – Space Exploration
In-Class Test 2 - November 2014

Instructions: Answer all 20 questions in the following table.

Each full answer is worth one mark. The test is worth 20 marks, or 20% of the course grade. No notes or other materials may be referred to during the examination. Time available: 50 minutes.

Print name: _____

Signature: _____

Student Number: _____

1. What continually streams out from the Sun?		2. Which moon has lots of active volcanoes?	
<input type="checkbox"/> Hot gas	<input type="checkbox"/> Sun stream	<input type="checkbox"/> The Moon	<input type="checkbox"/> Vulcan
<input checked="" type="checkbox"/> Solar wind	<input type="checkbox"/> Flare bursts	<input checked="" type="checkbox"/> Io	<input type="checkbox"/> Titan
3. What is an NEO		4. What is an LEO?	
<input checked="" type="checkbox"/> Near Earth Object	<input type="checkbox"/> Non-Equator Orbit	<input type="checkbox"/> Late Earth Orbiter	<input type="checkbox"/> Last Equator Option
<input type="checkbox"/> New Earth Orbiter	<input type="checkbox"/> New Early Objects	<input type="checkbox"/> Long Ellipse Object	<input checked="" type="checkbox"/> Low Earth Orbit
5. What was the first Venus orbiter?		6. What was the first spacecraft to land on Mars? (not including anything which crashed)	
<input type="checkbox"/> Venus 1	<input type="checkbox"/> Magellan	<input type="checkbox"/> Pathfinder	<input type="checkbox"/> Viking 1
<input checked="" type="checkbox"/> Venera 9*	<input type="checkbox"/> Pioneer Venus	<input checked="" type="checkbox"/> Mars 3	<input type="checkbox"/> Mars 2
7. Which asteroid is Dawn approaching now?		8. Which spacecraft was the first to fly past Saturn?	
<input type="checkbox"/> Celebes	<input checked="" type="checkbox"/> Ceres	<input type="checkbox"/> Pioneer Saturn	<input type="checkbox"/> Voyager 1
<input type="checkbox"/> Cereal	<input type="checkbox"/> Cetacean	<input type="checkbox"/> Cassini	<input checked="" type="checkbox"/> Pioneer 11
9. Which asteroid was orbited by NEAR (Near Earth Asteroid Rendezvous)?		10. New Horizons is on its way to Pluto. Which gas giant planet did it fly past on the way?	
<input type="checkbox"/> Itokawa	<input checked="" type="checkbox"/> Eros	<input checked="" type="checkbox"/> Jupiter	<input type="checkbox"/> Saturn
<input type="checkbox"/> Mathilde	<input type="checkbox"/> Vesta	<input type="checkbox"/> Uranus	<input type="checkbox"/> Neptune

* (Venera 9 mission had an orbiter as well as a lander)

Question	Answer (keep it brief, point form OK)
11. (a) What was the first rover on Mars? (b) What recent spacecraft mission mapped the Moon's gravity?	(a) Sojourner (0.5) (Also accept any reference to a tiny rover carried by Mars 3, though I don't refer to it) (b) GRAIL (0.5)
12. (a) What is GLONASS? (b) What could a satellite measure to map the ocean floor?	(a) Russian version of GPS (0.5) (b) height (elevation) of the sea surface (0.5)
13. (a) What is Kosmotras? (b) What is Dnepr (in the context of our course)?	(a) Russian company using converted missiles as launch vehicles (0.5) (b) Converted missile used as a launch vehicle (0.5) (just 'rocket' : 0.25)
14. (a) Which US president started the Strategic Defense Initiative? (b) How could a rover make art on the Moon?	(a) Ronald Reagan (0.5) (b) making tracks with its wheels (0.5)
15. What did the first United Nations space treaty prevent? (b) Which Canadian university has a space law institute?	(a) Nuclear weapons (or nuc. weapons tests) in space (0.5) (weapons in space: 0.25) (b) McGill (0.5)
16. (a) Name two launch vehicle manufacturing companies (listed on the website). (b) Name two active Google Lunar X Prize teams.	(a) Lockheed Martin, Boeing, SpaceX, Orbital Sciences, Arianespace, United Launch Alliance (any two...) (0.5) (b) Astrobotic, Moon Express (only two I mention on site... check any others with me or on GLXP website) (0.5)
17. (a) Which company put Star Trek's Scotty into space? (b) Which website lets you name a Mars crater?	(a) Celestis (0.5) (b) Uwingu (0.5)
18. (a) What main service does Space Adventures offer? (b) What is the difference between the goals of Sierra Nevada Corp. and XCOR?	(a) Carry 'tourists' to the Space Station (0.5) (b) Sierra Nevada – wants to go to orbit, XCOR plans only sub-orbital flights (Any statement along these lines is OK) (0.5)
19. (a) Where does Golden Spike want to take people? (b) What will Stratolaunch try to do with the world's biggest aircraft?	(a) The Moon (0.5) (b) Carry a rocket up, release it, send it to orbit (0.5)
20. (a) Name 2 US companies now taking cargo to the Space Station. (b) Name 2 US companies trying to fly crew to the Station in future.	(a) SpaceX, Orbital Sciences (0.25 each) (b) SpaceX, Boeing, Sierra Nevada (any two are OK) (0.25 each)