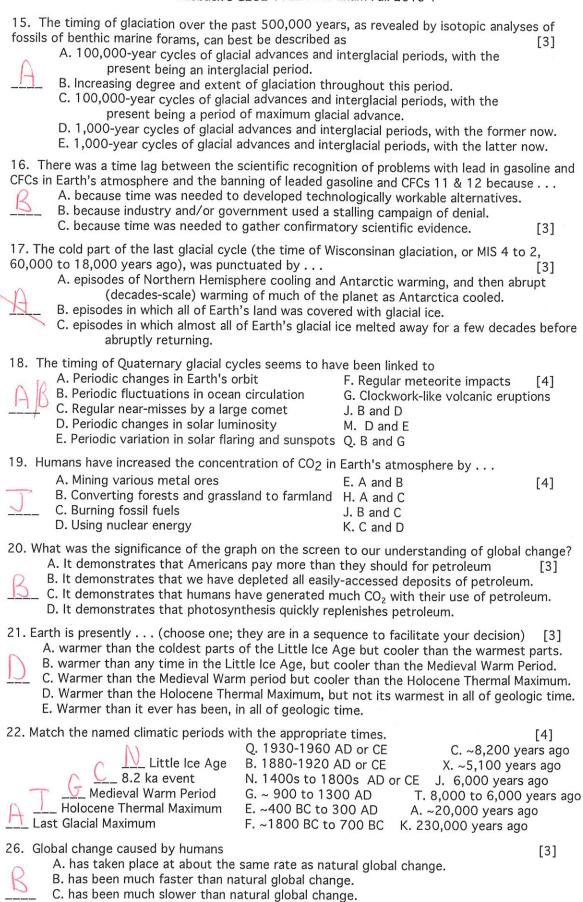
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GEOL 1122 Section 13799 - Final Exam - December 12, 2019 Professor: L.B. Railsback For all matching questions, any letter may be used any number of times.  Name as it appears in UGA	documents
<ol> <li>Part I</li> <li>The current scientifically accepted notion of the origin of the Earth is (choose or A. Accretion of gases and molten materials from the solar nebula, with subsequent fithose liquids and gases to form the core and mantle before solidification of the ent B. Ejection of the proto-Earth from a massive sunspot and subsequent magnetic attrinetallic meteorites to give Earth's present core rich in iron and nickel beneath the size.</li> <li>C. Earth formed around a distant star and was ejected from that star's planetary syswas later trapped in the gravitational field of our sun and settled into an orbit aroun D. Accretion of mostly solid materials from the solar nebula, and subsequent heating activity and other sources to cause melting that allowed differentiation of core and A. From Earth's geography for the last 2 or 3 billion years can be summarized by A. From Earth's formation until about 300 million years ago, Earth's geography con large ocean Panthalassa surrounding a supercontinent Pangaea, until the latter by B. Earth's continental crust has repeatedly broken into separate continents and the agglomerated into one or two supercontinents, and then broken apart again, and C. Earth was entirely covered with oceans until a large meteorite impact delivered trich materials of the continental crust about 800 million years ago.</li> </ol>	ow of ire planet. action of lic mantle tem, and d the sundamente. est as sisted of a oke apart n so on. he silica-
D. Earth was entirely covered with continents until condensation from the atmosph formed the oceans about 1.5 billion years ago.	ere [3]
3. Earth's atmosphere in the early Archean probably consisted of  A. CH <sub>4</sub> (methane), NH <sub>3</sub> (ammonia), N <sub>2</sub> (nitrogen), O <sub>2</sub> (oxygen), and  CO <sub>2</sub> (carbon dioxide).  B. N <sub>2</sub> (nitrogen), O <sub>2</sub> (oxygen), Ar (Argon), He (helium) and CO <sub>2</sub> (carbon dioxide).  C. CO <sub>2</sub> (carbon dioxide), CO (carbon monoxide), H <sub>2</sub> (hydrogen), CH <sub>4</sub> (methane),  NH <sub>3</sub> (ammonia) and HCI (hydrochloric acid)	[3]
<ul> <li>4. Our current understanding of the history of O<sub>2</sub> in Earth's atmosphere is that <ul> <li>A. there was little O<sub>2</sub> in the atmosphere until about 3.8 billion years ago, when the photosynthesizers appeared.</li> <li>B. there was little O<sub>2</sub> in the atmosphere until ~2.1 billion years ago, as suggested by the presence of banded iron formations and increase in redbeds thened.</li> <li>C. there was little O<sub>2</sub> in the atmosphere until the Cretaceous, when the first grass increased the extent of photosynthesis.</li> <li>D. there was little O<sub>2</sub> in the atmosphere until the Cenozoic, explaining why mammals now dominate Earth's ecosystems but did not in the Mesozoic.</li> </ul> </li> </ul>	l ceforth. ses
<ul> <li>5. Our best approximation of how sea level has varied through time is <ul> <li>A. High in the Cambrian, low in the Ordovician, and high thereafter.</li> <li>B. Low in the Ordovician and Silurian, high in the Permian and Triassic, low in the Cretaceous, and rising in the Cenozoic to a high in the Quaternary.</li> <li>C. Rising throughout the Phanerozoic to a high level today.</li> <li>D. High in the Ordovician and Silurian, low in the Permian and Triassic, high in the Cretaceous, and dropping in the Cenozoic to a low in the Quaternary E. Dropping throughout the Phanerozoic to a low level today.</li> </ul> </li> </ul>	[4]
6. The best graphic summary of global-scale climate change in the Phanerozoic is  A B C Present	[4]
Present  C O S D M PPT J K PNQ C O S D M PPT J K PNQ	fr "Greenhouse" "Icehouse" U

7. Measurements of proxies and geochemical modeling of the carbon cycle suggest that C concentrations were	;O <sub>2</sub> [4]
A. Very high in the Ordovician to Devonian, low in the Mississippian to Permian, high in the Mesozoic, and then low in the Cenozoic.	
B. Low in the Paleozoic, moderate in the Mesozoic, and high in the Cenozoic. C. Low in the Ordovician to Devonian, highest in the Mississippian to Jurassic, low in the Cretaceous, and high in the Cenozoic.	
8. The evidence presently available suggests that the best characterization of Cretaceous climate is A. Generally cooler than today.  B. Polar regions similar to today, but equatorial regions cooler than today.  C. Equatorial regions similar to today, but warmer at the poles than today.  D. Equatorial regions similar to today, but much colder at the poles than today.  E. Polar regions like today, but equatorial regions much warmer than today.	s global [4]
<ul> <li>9. The time in which we think the genera Australopithecus and Homo lived coincides with A. The long period of warm global climate that began in the early Cretaceous.</li> <li>B. the relatively cool global climate of the last five million years.</li> <li>C. The warm and comparatively stable Holocene interglacial.</li> </ul>	[3]
10. We used a fossil breadfruit leaf from the Cretaceous of Greenland as an example of A. How plant and animal remains can be transported by ocean currents. B. How plate tectonic reconstructions are made. C. The evidence for glaciation in Northern Hemisphere before the Cenozoic. D. How paleobiogeography is used to understand ancient climate.	[3]
11. A distinct climatic event occurred about 50 million years ago, in the latest Paleocene earliest Eocene (both of which are epochs of the Paleogene period). It (check all that	apply)
was caused by a meteorite impact was caused by perturbations of Earth's orb	
was caused by an exceptional release of methane was a distinctly cold event	[3]
was a distinctly hot event was a period of glaciation caused an extinctio	n event
12. Which of the following are evidence that glaciers moved across North America in the Quaternary? Check all that are correct.	[4]
Elephant bones in Michigan Fossils of Devonian snails found in Illinois Striations on bedrock surfaces in the Midwest Erratics (exotic blocks of rock) scattered across the landscape Tills covering much of the landscape north of the Ohio and Missouri Riv The positions of end moraines at the southern end of Lake Michigan and the southwest end of Lake Erie.	vers.
<ul> <li>13. Dropstones are anomalously large sediment particles in the otherwise fine-grained sed of the deep oceans. We used dropstones and their locations as evidence <ul> <li>A. for meteorite impacts that caused mass extinctions.</li> <li>B. for times of very low sea level.</li> <li>C. for times of colder global climate.</li> <li>D. for use of anchors by prehistoric mariners.</li> <li>E. for trans-oceanic flight by ea</li> </ul> </li> </ul>	[4]
14. The main point of our "Holocene VII – Why I to V happened" lecture (the lecture with wolves, clever squirrels, happy gazelles and wildebeests, and far too many dead deer) was A. North American wildlife has suffered greatly from lead poisoning  B. Agriculture and industry, combined with currency, lead to a totalitarian view of C. Americans use energy, metals, and food at a far greater rate than other people D. Application of CFCs has caused widespread environmental devastation and exti	that [3] ecology.



3

27. For each of the questions or objections on the left posed by skeptics of global climate change, fill the blank or blanks with the letter or letters representing the appropriate response from the list on the right. I live in the A. This is denialism - the southeastern US has in fact warmed. southeastern United B. You're right, the southeastern United States is one of the two places on Earth that have States, and I don't cooled, both of them because of failure of the AMOC caused by global-scale warming. think the climate C. You're right, and in fact much of North America has cooled as winds from Greenland have strengthened, bringing cool air. has warmed. A. You're right: most climate scientists think there is no anthropogenic global warming. [3] \_ There's no B. You're right: most climate scientists think there is global warming, but they don't think consensus among scientists about that it has been caused by humans. C. 97% of climate scientists think global climate has warmed as the result of human activity. climate change. A. Extrapolation of past trends and cycles yields nothing like the observed warming - in fact, Hasn't the increase in it indicates that cooling would have happened. global temperature B. You're right: climate changed lots in the past, and today's warming is part of that pattern. just been a continu- C. Global-scale experiments show that the warming can only be anthropogenic. D. Modeling (i.e., computer simulation) of climate shows that natural inputs cannot explain ation of natural trends and cycles? the observed warming, but the combination of natural and human inputs can. A. Yes, in fact we need to add more CO<sub>2</sub> to avoid the coming ice age. If Earth was going [3] into another ice age, B. Yes, we have just about balanced the natural cooling trend with our isn't it a good thing injection of CO, into the atmosphere. that we have warmed C. We have already far over-corrected relative to the Holocene Thermal Maximum, the Earth with CO2? the warmest point of the glacial-interglacial cycle. A. Direct sampling of air for the last sixty years, and sampling of air trapped in [3] How would we glacial ice, show that the CO<sub>2</sub> concentration today is far greater than at any time know if the concenover the last 800,000 years. tration of CO, in air B. You're right - air isn't preserved the way sediments and fossils are, because it's a gas. had increased? C. You're right - scientists have been sampling air, but they have done so in cities where there were lots of automobiles, so the data say nothing about the bigger picture. 28. The presentation called "The Holocene VI – an alternate Late Holocene" examined European life-styles and suggested that some of the features that allow Europeans to live comfortably with lesser energy and environmental costs than those of Americans include . . . . (check all that apply) More fuel-efficient vehicles. Monarchies like those in Britain and Spain. More useful public transportation. [3] Laws and infrastructure facilitating travel on foot and by bicycle.  $\_$  Socialist governments like those in Italy, France, Germany, and Denmark. 29. Lecture 26 on resource issues argued that patterns of mining and petroleum extraction suggest that A. We have in decades used up all of the easily available deposits of those resources, which required hundreds of millions of years to accumulate. B. Use of solar-based technologies would enhance production of metals and petroleum. C. Hiring of more geologists would lead to more discoveries and lower prices for consumers. 30. Our reading on Aldo Leopold's essay "The Land Ethic" argued that there are practical arguments for an ethics of treatment of land parallel to that for treatment of animals and treatment of humans. Those arguments had to do with [3] A. Water supplies, agricultural productivity, and local- to global-scale climate change. B. Transportation, land ownership, and interstate- to international-scale relations. C. Sports and recreation, tourism, and regional- to international-scale migration. 31. The "Changing the World" lecture accessed online examined satellite and space-shuttle images of Earth's surface and concluded that A. Humans have changed the Earth surface greatly and with no chance of remediation. B. Humans have done little to change the Earth surface, but we need to do so in order to geo-engineer solutions to global warming. C. Humans have changed the ecosystems at the Earth surface greatly, but those ecosystems can be restored across broad areas if we want them to be restored. D. Much of Earth's surface remains under-utilized and, if converted to farmland, could feed

billions more humans as Earth's population increases.

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our answer should be a summar	ing of the origin and pre	ng the current scientific understanding of the present. Your answer should include sent context of humans in Earth history. Illy correct and complete and (b) coherestative references to ages or times of
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Part III  For the story and cultural group indicated, write an essay on this page (using the back of this page if necessary) that accomplishes the following.	7
(a) give the time the story was written or the context in which was written, if such information is provided in <i>Creation Stories From Around the World</i> or in an updated class handout,	
(b) recount the story, in no more than 250 words, as told in <i>Creation Stories From Around the World</i> ,	
(c) indicate whether or not you think the story is a literal account of the origin of the earth and/or its life and/or its peoples. If your answer is "yes", indicate why you pick this story rather than one of the others. If your answer is "no", indicate why you reject this story.	
(d) comment on the story in terms of how it portrays the human relationship to nature or in terms of its implications for the society from which it comes.	
Whether you answer "yes" or "no" to part C will have no effect on your grade, so long as you justify your response as indicated above.	

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