

※ 本大題請於試卷內之「選擇題作答區」依序作答。

壹、選擇題 40%

1. () Which one of the following is not one of the evolutionary models explaining the tempo and mode of evolution in marine planktonic organisms? (1) saltation, (2) vicariant, (3) peripheral isolation, (4) sympatric.
2. () As an alternative to conventional phyletic gradualism, the evolutionary model proposed by Eldredge and Gould in 1972 is named (1) hopeful monster theory, (2) neutral persistence, (3) punctuated equilibria, (4) Red Queen hypothesis.
3. () A species evolved and distributed in a localized area is described as a(n) (1) metropolitan, (2) endemic, (3) ecotone, (4) geographic species.
4. () What evidence obtained from deep-sea cores indicates that glacial-interglacial cycles have occurred repeatedly during the Pleistocene Epoch: (1) evolution of planktic foraminifera, (2) sulfur isotopic ratios of pyrite, (3) magnetic polarity, (4) oxygen isotopic composition of foraminiferal tests.
5. () Which of the following hypotheses explains the recurrence of glacial events on time scales of tens of thousands of years? (1) Columbus hypothesis, (2) Coriolis hypothesis, (3) Astronomer's hypothesis, (4) Milankovitch Theory.
6. () From the following choose a right statement about the Quaternary carbonate stratigraphy: (1) The %CaCO₃ is generally lower during the glacial period for the Pacific open ocean, (2) the variation of %CaCO₃ over glacial-interglacial intervals in the Atlantic deep-sea cores is mainly governed by dilution effect. (3) The CCD in the Pacific is generally deeper than that in the Atlantic Ocean. (4) The lysocline does not change its position over glacial-interglacial cycles.
7. () During the past 16,000 years the global sea-level has (1) risen by ~1 meter, (2) risen by ~130 meter, (3) risen by ~0.1 meter, (4) no change at all.
8. () In which type of unconformity are the beds parallel to each other? (1) nonconformity, (2) angular unconformity, (3) disconformity, (4) hiatus.
9. () Placing geologic events in sequential order as determined by their position in the geologic record is: (1) absolute dating, (2) uniformitarianism, (3) relative dating, (4) historical dating.
10. () Which of the following methods can be used to demonstrate age equivalency of rock units? (1) lateral tracing, (2) guide fossils, (3) position in a sequence, (4) all of these.
11. () The geologic age of strata in Western foothills of Taiwan is mainly (1) Paleocene, (2) Eocene, (3) Oligocene, (4) Miocene.
12. () One of the intervals which clearly shifts from warm to cold conditions during Cenozoic is (1) Late Paleocene, (2) Early Eocene (3) Early Miocene (4) Middle Miocene.

見背面

13. () The presence of eukaryotes is from (1) Archean, (2) Proterozoic, (3) Paleozoic (4) Mesozoic.
14. () The volcanic rocks in eastern China mainly belong to (1) Proterozoic (2) Paleozoic, (3) Mesozoic, (4) Cenozoic.
15. () The reptile fossils in Mesozoic that related to mammal are (1) therapsids, (2) dinosaurs, (3) ichthyosaurs, (4) plesiosaurs.
16. () The Younger Dryas event occurred during (1) Miocene, (2) Pliocene, (3) Pleistocene, (4) Holocene.
17. () "Global change" in Geosciences is a topic mainly for (1) tectonism, (2) evolution of lifes, (3) environmental change, (4) seismicity.
18. () The major orogeny in western America occurred during (1) Archean, (2) Proterozoic, (3) Paleozoic, (4) Mesozoic.
19. () Tethys Ocean existed during (1) Cambrian, (2) Permian, (3) Carboniferous, (4) Jurassic Period.
20. () *Spirifer* is a fossil in Devonian and belongs to (1) Brachiopods, (2) Mollusks, (3) Arthropods (4) Echinoderms

貳、問答題 (60%)

1. 海水面變遷題組(15%)

名詞解釋 (簡述各名詞的意義, 辨別其異同, 並繪圖輔助說明之)

1. glacio-eustacy
2. tectono-eustacy
3. glacio-isostasy

2、「碳循環」題組(20%) :

- (1) 地表生物的光合作用與呼吸作用對地球大氣圈的二氧化碳含量有何影響? (2) 生物產生的有機碳可能被分解, 也可能被埋藏, 當埋藏量增大, 會產生什麼樣的礦產資源? 對地球氣候又會有什麼影響?
- (3) 近 50 多年來, 大氣中二氧化碳的濃度不斷增加, 是什麼原因造成的? 對地球的氣候會有什麼影響?
- (4) 有什麼樣的地球化學指標可以顯示地史時代中二氧化碳的濃度變化? 說明原理並舉一例證

3、試述新生代造山帶分佈在地球上那些地區。(15%)

4、地球系統是指甚麼? (10%)