

2022 US Geography Championships Multiple Choice Examination - Part 1

Instructions – This portion of the multiple choice examination consists of 40 questions. You will receive two points for a correct answer. You will lose one point for an incorrect answer. Blank responses lose no points. Please fill in the bubbles completely on the answer sheet. You may write on the examination, but all responses must be bubbled on the answer sheet. All images are contained in the resource booklet. Diacritic marks such as accents may have been omitted from place names and other proper nouns. You have one hour to complete both the written portion of the examination and this set of multiple choice questions.

Questions 1-10 refer to image 1 in the resource section.

- This is a visualization of the economic development model proposed by which of the following?
 - Clark and Fisher
 - Walt Rostow
 - Harrod and Domar
 - Solow and Swan
- Which of the following would NOT be a label on the X axis of this graph?
 - pre-industrial
 - developing
 - industrial
 - post-industrial
- Which of these is represented by the line labeled Y on the diagram?
 - the primary sector
 - the secondary sector
 - the tertiary sector
 - the quaternary sector
- According to the theory represented here, which of the following is occurring in the economy when the lines marked W and Y cross on the graph?
 - a war or social unrest
 - a steep decline in the birth rate
 - high levels of environmental degradation
 - de-industrialization
- Which of these best describes the quaternary sector of the economy?
 - industry and manufacturing
 - economic activity that is associated with either the intellectual or knowledge-based economy
 - the extraction and production of raw materials
 - the provision of services instead of end products
- Which of these countries would fall into the area of the graph marked 3?
 - France
 - Saudi Arabia
 - Mexico
 - Argentina

- Under Rostow's stages of growth, which of these countries would have reached maturity last?
 - the United States
 - Germany
 - Canada
 - Great Britain
- During which of the following periods did de-industrialization most prominently occur in the United States?
 - 1920s to 1940s
 - 1950s to 1960s
 - 1980s to 1990s
 - 2000s to 2010s
- The Harrod-Domar model of economic growth explains an economy's growth rate in terms of which of these pairs of factors?
 - population growth and death rate
 - level of savings and capital
 - imports and exports
 - natural resources and agriculture
- Which of these has NOT been proposed as a 'quinary sector' of activity by economists?
 - non-profit work such as charities and NGOs
 - 'gold collar' professions like researchers and executives
 - the sector that focuses on human services and control
 - financial services like banking

Questions 11-20 refer to image 2 in the resource section.

- Given the information on the map, in which of the following would palm oil grow the best?
 - 60° S to 45° S
 - 45° S to 30° S
 - 30° S to 15° S
 - 15° S to 0°
- In the Koppen climate classification, which of these corresponds to the areas where the most palm oil is produced?
 - BWh and BWk
 - Af and Aw
 - Cwa and Cwb
 - Dsc and Dsd
- Which of these consumer products is made with palm oil?
 - instant noodles
 - soap
 - Greek yogurt
 - margarine

14. Which pair of countries has experienced the most deforestation from the planting of oil palms?

- A. China and Russia
- B. Brazil and Argentina
- C. Nigeria and Cameroon
- D. Indonesia and Malaysia

15. Which of these is NOT true of the relationship between deforestation and palm oil production?

- A. palm oil production has made Indonesia the second-largest emitter of greenhouse gases in the world
- B. oil palms sequester far less carbon than the trees they replace
- C. over 60% of the carbon previously sequestered in forests is released into the atmosphere when replaced with oil palms
- D. each hectare of rainforest replaced with oil palms releases over 170 tons of carbon

16. Which of these is true of oil palm production?

- A. it uses far more fertilizer than other sources of vegetable oil like soybeans or coconut palms
- B. it uses far more water than soybeans or coconut palms
- C. it produces 4 to 10 times more oil per hectare than soybeans or coconut palms
- D. unlike soybeans or coconut palms, oil palms increase the fertility of the soil

17. Roughly how many people worldwide directly make their living from palm oil production?

- A. around 500,000
- B. around 1 million
- C. around 2 million
- D. over 5 million

18. All of these have contributed to the huge growth in palm oil production EXCEPT which of the following?

- A. rapid expansion in palm oil production in the United States
- B. bans on trans-fats in parts of the United States, Canada and the EU
- C. expansion of industrial logging in certain countries
- D. government policies promoting production in countries like Indonesia

19. All of these have been promoted to increase the sustainability of oil palm cultivation EXCEPT which of the following?

- A. supporting smallholder farms
- B. massive replanting efforts to reverse deforestation
- C. land-use plans by local governments
- D. encouraging large companies to source sustainable palm oil and palm oil products

20. According to the map, which South American country produces the most palm oil?

- A. Brazil
- B. Venezuela
- C. Colombia
- D. Peru

Questions 21-30 refer to image 3 in the resource section.

21. Which of the following is represented by the horizontal arrow marked X on the image?

- A. increasing rain intensity
- B. decreasing rain intensity
- C. increasing rain frequency
- D. decreasing rain frequency

22. Which of the following is shown by the vertical arrow marked Y on the image?

- A. increasing rain intensity
- B. decreasing rain intensity
- C. increasing rain frequency
- D. decreasing rain frequency

23. Which areas on the map have frequent, intense rainfall?

- A. 1 only
- B. 7 only
- C. 3 and 5
- D. 2 and 6

24. Which of these areas on the map receives infrequent, intense rainfall?

- A. 1 only
- B. 7 only
- C. 3 and 5
- D. 2 and 6

25. Rainfall in the Pacific Northwest can be characterized by which of the following?

- A. moderate in both frequency and intensity
- B. frequent, light
- C. moderate, intense
- D. frequent, moderate

26. According to the map, Western Australia has rainfall intensity and frequency similar to which of these?

- A. the Sahel
- B. Colorado
- C. most of Europe
- D. Japan

27. All of these are true of the effect of climate change on precipitation EXCEPT which of the following?

- A. climate change can affect the intensity and frequency of precipitation
- B. climate change causes more total precipitation in most effected regions
- C. heavier precipitation caused by climate change increases flood risk where it occurs
- D. changes in intensity and frequency of precipitation due to climate change can change total precipitation

28. According to NOAA, which of these is true about extreme rainfall events?

- A. extreme rainfall events by definition require two average months of rainfall occurring in one day
- B. extreme rainfall events are increasing in frequency worldwide
- C. there is no single definition of extreme rainfall
- D. extreme rainfall events involve areas of high moisture contained within stable, cool systems

29. According to the Clausius-Clapeyron equation, how much more moisture can the air hold for each degree Celsius of temperature rise?

- A. 3%
- B. 5%
- C. 7%
- D. 11%

30. According to climate models, Southern California will experience which of the following changes in total annual precipitation between the year 2000 and 2100?

- A. a 10% increase
- B. there will be no significant change
- C. a 10% decrease
- D. a roughly 20% decrease

Questions 31-40 refer to images 4-6 in the resource section.

31. What mechanism is likely the cause of the formation in image 4?

- A. a sinkhole
- B. weathering combined with erosion
- C. biological weathering
- D. wave refraction

32. Given the appearance of the rock in image 5, which of the following chemical weathering processes was most likely responsible for its formation?

- A. carbonation
- B. dissolution
- C. hydrolysis
- D. oxidation

33. The rock formation in image 6 on the California coast is given what name?

- A. tafoni
- B. eluvium
- C. spheroidal
- D. exfoliation

34. Which of the following is most likely to affect buildings, statues, and monuments that are exposed to the elements?

- A. mineral hydration
- B. acid rain
- C. unloading
- D. thermal stress

35. Which of these is the main source of the type of physical weathering known as haloclasty?

- A. erosion
- B. radical temperature changes
- C. thermal fatigue
- D. deposition of salt crystals

36. In what environment is thermal stress weathering the most prevalent?

- A. urban areas
- B. deserts
- C. extremely cold environments
- D. coastal areas

37. Which of these is among the most effective biological agents of chemical weathering?

- A. grasses
- B. coastal trees
- C. lichens
- D. food crops

38. Exfoliation is caused by which of the following mechanisms?

- A. pressure release
- B. capillary action
- C. chelation
- D. decay

39. Which of these is NOT generally true of weathering?

- A. it involves the transport of rocks and minerals by various agents
- B. it occurs in situ
- C. it involves the deterioration of rocks, soils, minerals, and wood
- D. atmospheric gases play a role in weathering

40. Sedimentary rock produced from weathering covers roughly what percentage of the Earth's continents?

- A. 10%
- B. 30%
- C. 50%
- D. over 65%