

GEOG 122 Review Sheet #1

Review Questions for Multiple choice and True/false type questions

Introduction

1. Hawai'i is the southernmost state in the United States, located between _____ and _____ **latitude**. (p. Xiii).
2. How many **time zones** separate Hawai'i from the **eastern** United States? (p. xiii)
3. Hawai'i ranks _____ th in size among the states in the United States. (p. xiii)
4. List the four counties in the State of Hawaii. (p. xiv)
5. Transportation within the State of Hawai'i has always been expensive because Hawai'i is a/an _____. (p. xiv)

Reference maps

6. The mountain summit of **Kau'ai** is one of the **wettest** spots on Earth because _____. (p. 3)
7. The interior mountains of **Kau'ai** have been **eroded** by _____ to produce the spectacular topography of Waimea Canyon and Na Pali Coast. (p. 3)
8. Kau'ai has been severely impacted by **hurricanes**, especially by Hurricane _____ in September 1992. (p. 3)
9. **Ni'ihau** is a **semiarid** island because it is lying in the _____ of Kau'ai. (p.6)
10. **O'ahu's** parallel ranges formed by the Ko'olau and Wai'anae Mountains are the eroded remnants of two _____ **volcanoes**. (p. 7)
11. A distinctive feature of O'ahu's **geomorphology** is the _____ that extends from Diamond Head across Pearl Harbor to 'Ewa and Barbers Point. (p. 7)
12. Possessing superb natural harbors, a dry leeward climate, and abundant freshwater streams descending from the Ko'olau Range, **Honolulu** and the surrounding _____ of **O'ahu** were destined quickly to become the commercial and urban center in the archipelago. (p. 7)
13. **Moloka'i** was formed from the coalescence of _____ separate volcanoes. (p. 11)
14. The remote _____ Peninsula of **Moloka'i** was chosen as the site for **Hansen's disease** (leper) colony in 1865. (p. 13)
15. The overgrazed areas near Kanepu'u, **Lana'i**, were marketed to tourists in the 1990s as the "_____." (p. 13)
16. An active volcano of _____ dominates **East Maui**. (p. 14)
17. There has been a rapid expansion of high value, diversified agriculture on the cooler, upland slopes of Haleakala around _____, where temperate vegetables and fruits, including the sweet "**Maui** onion," are grown. (p. 16)

18. **Kaho'olawe** is an **arid** island because it is located in the _____ of towering Haleakala, and with _____ relief. (p. 16)
19. The island of **Hawai'i** was formed from the coalescence of _____ volcanoes. (p. 17)
20. The **oldest** mountain on the Island of **Hawai'i** is _____. (p. 17)

Hawaiian place names

21. "**Honolulu**" means _____. (p. 26)
22. A topographic term used in Hawaiian place names that means "**island**" is _____. (p. 26)

Geology

23. The **Hawaiian Islands** belong to a linear chain of more than 100 volcanoes that stretches for approximately _____ miles. (p. 37)
24. The **Emperor Seamounts** are flat-topped, coral-capped **sunken** volcanoes called _____. (p. 37 & 41)
25. Beneath the active volcanoes of Hawai'i Island, a **plume of hot rock** anchored hundreds of miles deep in Earth upwells to form a _____ beneath the Pacific Plate. (p. 37)
26. Most of the world's active volcanoes are located at the **edge** of tectonic plates. One example of such edge is the **Pacific** _____ of _____. (p. 37)
27. The **Pacific Plate** drifts west-northwestward about _____ inches a year. (p. 37)
28. During the **submarine preshield** stage, volcanic lavas are the "_____" lava typical of deep underwater eruption. (p. 39)
29. The Hawaiian chain's **youngest** volcano is _____. (p. 39)
30. An explosive eruption during the "**explosive phase of the shield**" stage is called _____. (p. 37-39)
31. **Ropy** lava is called _____. (p. 39)
32. During all three phases of the **shield stage** of the evolution of a Hawaiian volcano the summit _____ repeatedly collapses. (p. 39)
33. The characteristic shape of the major **Hawaiian** volcanoes is the "_____" shape. (p. 39)
34. The **seaward, unsupported flanks** of Hawaiian volcanoes are unstable and slip toward the ocean creating large faults and causing major earthquakes and, infrequently, _____. (p. 39)
35. After the period of weathering and erosion, a volcano may undergo the _____ stage, a **final eruptive stage** during which strongly alkalic lavas are discharged (p. 40)

Geothermal resources

36. On which island do we expect to have the best **geothermal** resources? (p. 48)
 Hawai'i Kaua'i Moloka'i O'ahu

Climate

37. Which of the following is **NOT** a characteristic of Hawaii's general climate? (p. 49)
 Abundant sunshine Equable temperature
 Low humidity Persistent breeze
38. The **weather** of a place can be defined as the composite of its **climate**. T/F? (p. 49)
39. We generally recognize only **2 seasons** in Hawai'i. The early Hawaiians named them:
 _____ (warm season) and _____ (cool season) (p. 49)
40. How many times per year are the sun's rays **directly** overhead in Hawai'i? (p. 50)
41. Ocean temperatures fluctuate much **more** than those of land surfaces. T/F? (p. 51)
42. A prominent cause of year-to-year variability in **cool season rainfall** is _____. (p. 51)
43. In the **global atmospheric circulation**, Hawaii lies within the Northern Hemisphere
 _____. (p. 52)
44. Where rising and sinking air meet, a layer forms in which air gets warmer as altitude
 increases; in Hawai'i this **layer** is called the _____. (p. 52)
45. Because the **inversion** acts to keep humid marine air from reaching high altitudes, the upper
 slopes of the state's **highest mountains** usually experience _____, _____, and
 _____. (p. 53)
46. The **North Pacific anticyclone** moves farther north and, on average, is _____ and
 _____ in summer. (p. 53)
47. Typically, _____ associated with **mid-latitude cyclones** bring cloud and rain with
 winds from northeast through northwest. (p. 53)
48. **Kona storms** are a type of _____ system that develop in the subtropics. (p. 53)
49. Hawaii is located in a region where _____ air inhibits the formation of **deep** clouds. (p.
 59)
50. _____ **rainfall** is effective through out the year and supplies the bulk of Hawai'i's water
 resources. (p. 59)

Natural hazards

51. **Natural hazards** are extreme environmental phenomena that can cause _____,
 _____, and _____. (p. 67)
52. A "**high-risk**" zone of natural hazards can be either: (1) _____, or (2) _____. (p.
 67)
53. Since we cannot prevent **natural hazards**, we must attempt to _____ them. (p. 67)

Earthquakes

54. Unlike many other areas where seismic activity accompanies movement along tectonic (crustal) plate boundaries, in Hawai'i most **earthquakes** are linked to _____. (p. 69)
55. The size of an **earthquake** is commonly expressed in terms of **magnitude**, which is an instrumental measurement based on the _____, or size, of recorded seismic waves. (p. 70)
56. Research suggests that many of the significant **earthquakes** on **Hawai'i Island** have resulted from the seaward sliding of the south flanks of _____ and _____ along a nearly horizontal fault. (p. 71)

Volcanic hazards on the Island of Hawai'i

57. Residents of **Hawai'i Island** face a unique array of environmental hazards that go along with living on the slopes of a/an _____ volcano. (p. 72)
58. Hualalai erupts at about _____-year intervals. (p. 72)
59. Most hawaiian eruptions produce _____ lava flows that can travel many miles from their source. (p. 72)
60. The lava flow hazard zones are based on the location of _____, _____, and the topography of the _____. (p. 73)

Hurricanes

61. **Hurricane** winds exceed _____ miles per hour. (p. 74)
62. **Hurricanes** originating in the central North Pacific hurricane region—a zone bounded by the equator and west longitude lines _____ ° and _____ ° —are now given **Hawaiian names**. (p. 74)
63. For hurricanes to form, the vertical shear (variation of wind speed and direction with height) of the horizontal winds must be _____ (small/large). (p. 75, Box: "Hurricane Conditions")

Tsunamis

64. A **tsunami** is a series of very _____ (long/short) waves triggered by a disturbance at the seafloor that displaces water. (p. 76)
65. The Hawaiian Islands are exposed to **tsunamis** generated at the fault zones bordering the Pacific Ocean, the "_____ of _____." (p. 76)
66. **Tsunami** waves are _____ in the **open** ocean. (p. 76)

Coastal hazards

67. "**High surf**" is a condition of dangerous waves resulting from ocean swells associated with North Pacific _____. (p. 80)

The ocean

68. Surface **ocean** waters around the Hawaiian Islands are in general **warmer** to the _____ (east/west) at a given latitude. (p. 82)

69. **Deeper** in the ocean water, nutrients are **abundant**, but there is **no** light to support photosynthesis. True/False? (p. 83)
70. The depth of the _____ in the ocean varies markedly near the Hawaiian Islands, from more than 1,500 feet northwest of the Islands to less than 800 feet to the northeast and southeast. (p. 83)

Water

71. The success of traditional Hawaiian civilization depended **significantly** on the orderly allocation of the water supply. True/False (p. 87)
72. The principal volcanic feature of **hydrologic** importance in Hawai'i is the presence of thousands of thin-bedded, gently sloping, _____ **basaltic** lava flows. (p. 89)
73. In Hawai'i, groundwater occurs chiefly as either _____ or _____. (p. 89)
74. On O'ahu and Kaua'i virtually the entire **domestic** supply of water is derived from **groundwater**. True/False? (p. 91)

Soils

75. _____: The **soils** that are found on old, stable surfaces and, being **resistant** to physical deterioration under intensive mechanized agriculture, are the state's most important **agricultural** soils. (p. 92)