

DEPARTMENT OF GEOGRAPHY

Estuarine Geography 327

Mid Term-Form III-03

Dr. John F. Looney

NAME: _____

1. An estuary is _____.

- a. semi enclosed
- b. coastal body of water
- c. diluted by freshwater
- d. both a. & b.
- e. all of these

2. Variations in the estuary may be caused by _____.

- a. tides
- b. river drainage
- c. ground water seepage
- d. coriolis effect
- e. all of these.

3. Many organisms spend all or a part of their lifetime in the estuary.

- a. TRUE b. FALSE**

4. Poor estuarine circulation may lead to eutrophication.

- a. TRUE b. FALSE**

5. Shallow estuaries have low gradients, little erosion and are less than 3 meters deep.

- a. TRUE b. FALSE**

6. Deep estuaries are over 1000 meters deep.

- a. TRUE b. FALSE**

MATCH (7-13)

- | | |
|-----------------|-----------|
| 7. Sea grass | a. plant |
| 8. Manatee | b. animal |
| 9. barnacle | c. nekton |
| 10. rock weeds | d. algae |
| 11. snails | e. mammal |
| 12. green crabs | |
| 13. eel | |

14. The abiotic forms of the estuary are constrained by biotic factors.

- a. TRUE b. FALSE**

15. Beach berms are caused by wave action.

- a. TRUE b. FALSE**

16. Strand line flotsam and jetsam may be found in berms

a. TRUE

b. FALSE

MATCH (17-23)

- 17. Inundated spartina alterniflora
- 18. Upriver spartina paten
- 19. Indian Head and Herring River
- 20. Mangroves and Spartina Patens
- 21. Red and black mangroves
- 22. Low salinity - spartina patens
- 23. Turtle grass in clear water

- a. North River
- b. Barataria Bay
- c. Laguna de Tenuinos

24. As you go from a barrier island to a river you find intertidal mussel and clambeds, low energy epi fauna and narrow sandy beaches.

a. TRUE

b. FALSE

25. Cross sections of riverine salt marshes show verticle zonation.

a. TRUE

b. FALSE

26. The most basic food web is zoo plankton.

a. TRUE

b. FALSE

27. Which is not a true statement. As you move from fresh water to the sea

- a. salinity increases
- b. salinity increases with depth
- c. fresh water mixes with salt
- d. both a & b
- e. both a & c

28. According to Fairbridge the energy source of an estuary is concerned with:
Currents and moving water.

a. TRUE

b. FALSE

29. According to Fairbridge the energy source of an estuary is concerned with:

- a. currents
- b. sunlight
- c. organic and inorganic material
- d. all except c
- e. a, b & c

30. Which is not a primary element for most plan life:

- a. C
- b. O
- c. H
- d. P
- e. Si

31. C,H,D, and N may be derived from the atmosphere.

a. TRUE

b. FALSE

32. H⁺ Cation is _____; Anion
a. Na⁺
b. Cl⁻
c. Ca²⁺
d. Mg²⁺; K⁺

33. Sulfur is used to link complex proteins

a. TRUE

b. FALSE

34. Phosphate is important in protein synthesis and as a plant fertilizer.
a. TRUE
b. FALSE

35. Mangroves and salt marsh grasses are found in temperate wetlands.
a. TRUE
b. FALSE

MATCH (36-45)

36. Dense and robust
37. mainly spartina alterniflora
38. longest season
39. absent on the South American Coast
40. low lying little temperature change
41. loose wet soil
42. Red, black and white
43. Dark green and light green
44. Salicornia or glasswort association
45. Hummock and scrub
- a. temperate wetland
b. boreal wetland
c. tropical wetland

46. Vegetation fringing streams are taller and more robust and have much hydrogen sulfide.

a. TRUE

b. FALSE

MATCH (47-54)

47. rainfall
48. temperature
49. snow
50. salinity
51. landforms
52. tidal influence
53. tidal creek
54. world wide distribution
- a. local
b. latitudinal
c. coastal drainage
d. geographical
e. biomass

55. Two primary factors of geographical location and latitudinal controls are Solar radiation and temperature.

a. TRUE

b. FALSE

MATCH (56-63)

- | | |
|----------------------|--------------------|
| 56. optimum pH | a. e |
| 57. salinity | b. 10-40 range |
| 58. N | c. nutrients |
| 59. P | d. tides |
| 60. Fe | e. abiotic factors |
| 61. stress producing | |
| 62. percolation rate | |
| 63. clay, silt, mud | |

64. Increasing nutrients directly initially effects productivity.

- a. TRUE b. FALSE**

65. Zostera/ Thalassia as eel grass:

- a. widgeon grass
- b. turtle grass
- c. ruppla
- d. both b & c
- e. both a & b

66. Seasonal growth rates are highest in the tropics.

- a. TRUE b. FALSE**

67. Diurnal cyclic temperatures peak around noon.

- a. TRUE b. FALSE**

68. Photosynthesis and Chemosynthesis may both be functioning in estuaries.

- a. TRUE b. FALSE**

69. Saprophytes are always non parasitic.

- a. TRUE b. FALSE**

70. Epiphytes utilize 10 - 50% of available light for photosynthesis.

- a. TRUE b. FALSE**

71. Although marsh grass is subject to air, water, and mud it decomposes at half of the rate of seagrass

- a. TRUE b. FALSE**

72. Estuaries usually are permanent features.

- a. TRUE b. FALSE**

73. Laguna Madre has a barrier island, lagoon, and inlets

- a. TRUE b. FALSE**

73. If wave energy decreases and river sediment increases-then a lagoon may become a delta.

a. TRUE

b. FALSE

MATCH (75-84)

75. 80-90% glacial effect

a. tidal rive zone

76. physical

b. near shore zone

77. chemical

c. mixing zone

78. biota

d. northeast coast

79. tidal ebb and flow oceanic

e. neutral estuary

80. tidal ebb and low salinity

81. fiords, fjords and firths

82. balance salt and fresh water

83. mid between positive and negative

84. Pritchard

85. Most estuaries are positive according to Pritchard.

a. TRUE

b. FALSE

86. Less spectacular relief than a fjord is a fjard or firth

a. TRUE

b. FALSE

MATCH (87-95)

87. U Shaped

a. lagoon

88. rock sill

b. salt marsh

89. parallel to coast

c. fjord

90. poorly drained

d. mangal

91. shallow

92. wind dominated

93. extensive

94. narrow inlets

95. evolved to barrier islands

96. Tectonically caused estuaries may have: _____.

a. faults

b. grabens

c. volcanos

d. landslides

e. all of these

97. Constraints to circulation may include: _____.

a. solar heating

b. tides

c. gravity

d. landslides

e. all of these

MATCH THE FOLLOWING CIRCULATION TYPES (98-103)

98. Surface-out; bottom-in

a. discharge

99. Surface-in; bottom-out

b. reverse tri-level

100. Surface and bottom in; middle-out
101. Surface and bottom out; middle-in
102. Follows discharge on reverse circulation
103. Outflow at all depths

104. Advectional; dispersive as long time:
a. particular scatters
b. diffuse
c. random
d. both a & b
e. all of these

105. Stommel's estuarine classification is dynamic.

a. TRUE b. FALSE

106. Sediments in the water column are higher in bacteria than the adjoining benthos.

a. TRUE b. FALSE

MATCH (107-113)

107. yeast
108. mold
109. decomposers
110. ciliated and flagellated
111. produce nitrous oxide
112. dead organisms
113. plankton in near surface water

- a. marine fungi
b. protozoan
c. denitrification
d. bioturbation
e. seston

114. Outwelling is caused by excess production or organic estuarine materials.

a. TRUE b. FALSE

115. The basis of organic estuarine food webs is detrital and nutrients.

a. TRUE b. FALSE

116. Ribbed mussels are found on piles and attached to rocks.

a. TRUE b. FALSE

117. Ribbed mussel location may be dependent upon available detritus.

a. TRUE b. FALSE

MATCH (118-130)

118. heterotrophs
119. animals
120. autotrophs
121. larval
122. seasonal metamorphosis
123. most abundant
124. oceanic
125. immature forms

- a. phytoplankton
b. heteroplankton
c. zooplankton
d. meroplankton
e. holoplankton

- 126. oceanic species - Spring peak
- 127. main physical controls - temps and salinity
- 128. excrete nitrogen nitely
- 129. minor importance
- 130. mixed in water column from bottom

131. Plankton floaters as _____
a. Neuston
b. Plankton
c. Nekton
d. both a & b
e. none of the above

132. It is possible to have sunlight penetrate to many benthic areas of the Persian golf.
a. TRUE **b. FALSE**

133. In the lower Tigris Euphrates River of Iraq we have a great marsh area.
a. TRUE **b. FALSE**

MATCH (134-139)

- | | |
|----------------------------------|---------------------------------------|
| 134. highest Salinity | a. Glacier and Tigris/Euphrates River |
| 135. Minimal coral distribution | b. Gulf of Salwah |
| 136. Probably cause Persian Gulf | c. approximately 300 miles |
| 137. Khafji - Salwah | d. average 300 ft. |
| 138. Persian Gulf depth | e. Northern section |
| 139. Khafji- Tarat Bay | |

140. Shrimp Fishing is important in the Persian Gulf.
a. TRUE **b. FALSE**

141. The location of a major off shore oil facility is _____.
a. Qatif Oases
b. Gulf of Salwah
c. Tarat Bay
d. Ras Tanura
e. Khafji

(142-145)

PLACE THE FOLLOWING VEGETATIVE FORMS IN ORDER OF LOCATION FROM LAND TO SEA.

- a. blue green and green algae
- b. black mangrove
- c. turtle grass
- d. marsh grass

146 The probable cause of the Tigris-Euphrates river delta was the glacier and two rivers.

- a. TRUE b. FALSE

147 Coral may inhabit the Persian Gulf.

- a. TRUE b. FALSE

148 Estuaries are common worldwide geomorphological features.

- a. TRUE b. FALSE