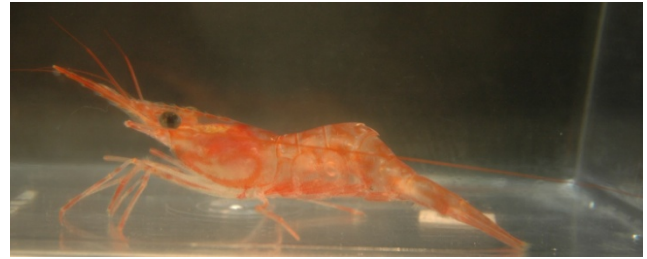


Carefully read the description of the experiment below. Be prepared to answer the questions that follow the design description as a class quiz.

Survival and growth of pink shrimp (*Farfantepenaeus paulensis*) post-larvae (PL) were examined at different salinities. This study was conducted at the Marine Aquaculture Station of the Fundação Universidade Federal do Rio Grande in Brazil.



Post larvae (PL) of *Farfantepenaeus paulensis* were reared at 22–25°C, 30‰ salinity, and natural photoperiod. Fifteen-day-old PL, reared at 30‰ salinity, were acclimated to 2, 5, 10, 20, and 30‰ over 5 days by daily reductions of 6, 5, 4, and 2‰ salinity, respectively. Post larvae kept at 30‰ salinity were used as control. After the salinity acclimation period, PL shrimp were raised in each of the salinities over 6 wk by stocking 80 PL shrimp in a 100-L plastic tank. Shrimp were fed *ad libitum* twice a day with a commercial diet. At the end of the experiment (week 6), all living shrimp were weighed (wet and dry weights) and measured (cephalotorax length was measured using a stereoscopic microscope). Survival and growth rates of pink shrimp reared at these salinities were determined for the 42-day experimental period. **Each salinity level was replicated in three 100-L plastic tanks** (15 tanks in all). Weights were taken as the **total for each tank and lengths as the mean for each tank**. For our purposes consider only the analysis of “**wet weight of all shrimp in a tank**” as the variable of interest.

**Survival, wet and dry weight, and cephalotorax length of *Farfantepenaeus paulensis* postlarvae reared at different salinities for 6 weeks.**

Salinity (‰)	Survival (%)	Wet Weight (mg)	Dry Weight (mg)	Cephalotorax Length (mm)
2	15.8 ± 4.7 (a)	102.4 ± 11.3 (a)	27.2 ± 3.7 (a)	4.8 ± 0.4 (a)
5	81.3 ± 5.2 (b)	135.2 ± 5.1 (ab)	30.8 ± 1.2 (a)	5.7 ± 0.2 (b)
10	88.3 ± 0.6 (b)	147.2 ± 4.6 (b)	33.2 ± 1.1 (a)	5.7 ± 0.1 (b)
20	82.9 ± 9.0 (b)	140.3 ± 7.6 (ab)	33.2 ± 1.9 (a)	5.1 ± 0.2 (ab)
30	70.0 ± 14.3 (b)	140.9 ± 10.0 (ab)	34.2 ± 2.6 (a)	5.1 ± 0.2 (ab)

Answer choices:	(A) tank	(B) shrimp	(C) salinity
	(D) photoperiod	(E) 42 days	(F) total wet weight

Name \_\_\_\_\_ Quiz Number \_\_\_\_\_ Date \_\_\_\_\_ / \_\_\_\_\_ / 2012

Circle the appropriate letter for each question.

- 1) What is the experimental unit for this experiment?      A      B      C      D      E      F
- 2) What is the sampling unit for this experiment?      A      B      C      D      E      F
- 3) What is the dependent variable for this experiment?      A      B      C      D      E      F
- 4) What is the treatment variable for this experiment?      A      B      C      D      E      F
- 5) If the design is RBD, what are the blocks?      A      B      C      D      E      F      NA
- 6) Does it seem more likely that the treatments are fixed or random?      (A) fixed      (B) random
- 7) What is the treatment arrangement for this experiment?      (A) single factor      (B) factorial      (C) nested
- 8) What is the experimental design?      (A) CRD      (B) RBD      (C) LSD      (D) Split-plot      (E) Repeated Measures
- 9) The treatment degrees of freedom are \_\_\_\_\_.
- 10) The degrees of freedom for the error used for testing treatments are \_\_\_\_\_.