EXST7015   **Daily Design 26**
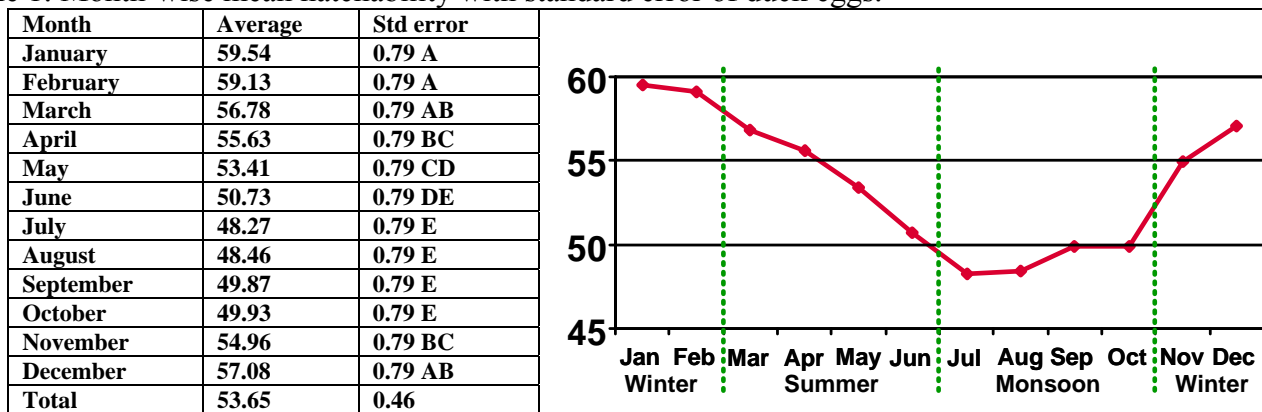
Carefully read the description of this experiment. Be prepared to answer the questions that follow the design as described. Note that the experiment maybe modified from the original.

A study was done at the Regional Duck Breeding Farm in Daulatpur, Khulna, Bangladesh. The objective was to examine the seasonal effect on duck eggs hatchability. Eggs were placed in an incubator and the number of eggs hatched was used to determine the hatchability percentage. Good quality, clean, medium-size eggs were collected for hatching. Hatchability was calculated on the basis of the number of eggs set into the incubator and the number of duckling hatched each month. Data were collected from 1995 to 2002, yielding 12 months of data for 8 years, for 96 observations. During this period 5,199,928 eggs were incubated and 2,789,000 ducklings were hatched. Years will differ, but year differences were not a variable that the investigator was interested in testing.

Data were examined **separately** to test for differences in the 12 months and to test for differences in the three seasons: summer (March-June), monsoon or rainy (July-October), and winter (November-February). The result revealed that hatchability of duck eggs were highest in January (59.54%) and lowest in July (48.27%) in case of month wise hatchability whereas winter (57.676%) shows the highest followed by summer (54.135%) and monsoon or rainy season (49.134%). **For our purposes consider the hatchability on a monthly basis as the variable of interest over the 8 years. Ignore seasons!**

Table 1: Month-wise mean hatchability with standard error of duck eggs.

Month	Average	Std error
January	59.54	0.79 A
February	59.13	0.79 A
March	56.78	0.79 AB
April	55.63	0.79 BC
May	53.41	0.79 CD
June	50.73	0.79 DE
July	48.27	0.79 E
August	48.46	0.79 E
September	49.87	0.79 E
October	49.93	0.79 E
November	54.96	0.79 BC
December	57.08	0.79 AB
Total	53.65	0.46

Answer choices:	(A) months	(B) eggs	(C) year by month combinations
	(D) years	(E) duckling	(F) hatchability

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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 _____ .