Statistics Individual Solutions Florida Invitational at Middleton Feb 23, 2008

Create a Venn diagram and solve.

1) **A**

2) **D**

3) **A**

4) **D**

5) **A**

6) ${}_{10}C_2$ = 45 **A**

7) $({}_7C_5 \ {}_3C_0)/ \ {}_{10}C_5$ = 1/12 **C**

8) 10!/[(7!)(2!)(1!)] = 360 **D**

9) **B**

10) **A**

11) Solve for E(X): 10(0.1)+20(0.25)+30(0.2)+40(0.45)=30 **A**

12) Solve for Z score; P(Z<1)-P(Z<-2) = 0.819 **D**

13) A proportion of 97.13 equals a Z-score of 1.9. $\overline{X}$ = 1.9(10)+250 = 269 **B**

14) Z = $\frac{265-250}{10}=1.5$; P = 1-0.9332 = 0.0668 **D**

15) $\frac{240-250}{10/\sqrt{n}}=1.7$ n = 2.89, but round up to next integer to 3. **D**

16) **C** the measurements could contain an outlier that would make our confidence interval invalid.

17) Mean = U-F = -12 Variance = $\sigma_U{}^2+\sigma_F{}^2$ = 19.28 **B**

18) $z\left(\frac{sd}{\sqrt{n}}\right)$ $z\left(\frac{\sigma}{\sqrt{n}}\right)$ = Margin of Error; $1.96\left(\frac{30}{10}\right)$ = 5.88 **D**

19) **B** 5 failures and 1 success (geometric)

20) **B**

21) **D** These are the conditions which let us use the normal approximation

22)Since $H_0 : p = 0.5$, and the experiment doesn't tell if it should be greater or less than, it should be a two sided hypothesis test. $H_1 : p \neq 0.5$ **A**

23) $\frac{p - p_0}{\sqrt{p_0(1-p_0)/n}} = Z$ =0.5692 = 0.57 since its two sided, calculate the probability in the tails to get **B** .5686

24) I and II. and III. True IV. False V. True **D**

25) $\frac{\Sigma(x-\bar{x})^2}{n} = 296$ **B**

26) This distribution satisfies the conditions of the binomial distribution. **A**

27) The probability of a red polka-dotted banana is 0. **B** (might have answered E since there are no red polka dotted bananas) let it go.

28) Z(female)= 2/3; Z(male)=3/4 Since Z(male)>Z(female), it is more likely to be a female. **B**

29) P(z>.75) = 0.2266 **A**

30) 35-5=30 **A**

Attach pages 12 and 13