

① mean =  $\frac{3(4+5) + 4(5+6) + 9(6+7) + 6(7+8) + 2(8+9)}{3+4+9+6+2}$   
 $= 64.5$  [B]

② {18, 18, 18, 20, 22, 24, 31, 45, 50, 71}  
 $\frac{18}{23}$  [A]


③  $A=C$   $B=5$   $C=4$   
 $2x^2 + 5x - 4 = 0$   
 $(2x-1)(3x+4) = 0$   $\left\{ \frac{1}{2}, -\frac{4}{3} \right\}$  [C]

④ weak negative [D]

⑤ skewed right [A]

⑥  $z = \frac{77.4 - 75}{3.2} = .75$  [B]

⑦  $P(A)P(B) = P(A \cap B)$   
 $(\frac{3}{4})P(B) = (\frac{1}{4})$   
 $P(B) = (\frac{1}{4}) / (\frac{3}{4}) = \frac{1}{3}$  [A]

⑧  $z = \frac{77 - 88}{4.1} = -2.19512$   
  
 $p = 0.0139$  [D]

⑩  $n = 536$   $p = .81$   $np = 434.16$   
 $\sigma = \sqrt{np(1-p)} = \sqrt{536(.81)(.19)} = 9.08$  [C]

⑪  $n = 8$   $p = 0.039$   $np = 0.312$   
 $1 - p(0) = 1 - C_0(.039)^0(.961)^8 = 0.273$  [A]

⑫  $P(F|R) = \frac{1}{4}$   $P(R) = \frac{1}{4}$   
 $P(F|R) = \frac{P(F \cap R)}{P(R)} = \frac{P(F)}{P(R)}$   
 $P(F) = P(F|R)P(R) = (\frac{1}{4})(\frac{1}{4}) = \frac{1}{16}$  [D]

⑬  $P(X > 7) = \sum_{k=8}^{\infty} \binom{10}{k} (\frac{1}{10})^k (\frac{9}{10})^{10-k}$   
 $= 0.619$  [B]

⑭ use area between  $z = \pm 1$   
 $68.27\%$  [D]

⑮  $\frac{A}{.05} = \frac{B}{.04} = \frac{C}{.03} = \frac{D}{.05}$  [D]

⑯  $\frac{10k}{2(100)} = \frac{9m}{3} = \frac{4n}{3.6} = \frac{5p}{2.4}$  Chemistry [C]

⑰  $\frac{1}{x} = \frac{1}{12} = \frac{1}{30}$  [A]

⑱  $z = (0.005(100)) - 2.5$   $P(Z) = \frac{(0.5)(e^{-z^2})}{\sigma}$  = .028 [B]


⑲  $\bar{x} = \frac{1760}{12} = \bar{x} \pm \frac{16}{12} = 0.761 \pm \frac{(1.79)(0.06)}{1200}$   
 $= 0.761 \pm 0.004$  [A]

⑳ mean [C] ㉑ median [D]

㉒ mode [B] ㉓ [A]

㉔ area under each tail must be 0.05.  
 $z = \pm 1.645$  [C]

㉕ [B]

㉖  $n = 100$   $p = .5$   $np = 50$    
 $\sigma = \sqrt{np(1-p)} = \sqrt{25} = 5$  we want area  
 $z = \frac{44.5 - 50}{5} = 1.1$  outside  $z = \pm 1.1$   
 from table: 0.2714 [A]

㉗ solve for  $a, b, c$ :  $\sum Y = a_n N + b \sum X$   
 $\sum XY = a \sum X + c \sum X^2$   
 $a = \frac{(\sum Y)(\sum X^2) - (\sum X)(\sum XY)}{N \sum X^2 - (\sum X)^2} = -3$   
 $c = \frac{N \sum XY - (\sum X)(\sum Y)}{N \sum X^2 - (\sum X)^2} = 2$   
 $y = 2x - 3$  [C]

㉘  $p = \frac{3/5}{1/5 + 3/5 + 1/5} = \frac{3}{5}$  [D]

㉙  $\frac{1}{21 \cdot 21} = 45360$  [A]

㉚   $\frac{1}{25}$  [C]

㉛  $\frac{7}{15}$  [B]