Solve the following and mention the suitable distribution and justify your answer.

1. An oil company conducts a survey which indicates whether an exploratory belt should have 20% chance of striking oil. Obtain the probability that the first strike comes on the –
2. 3rd well drill
3. 5th well drill.
4. A deck of cards contains 20 cards: 6 red cards and 14 black cards. 5 cards are drawn randomly without replacement. Determine the probability that exactly 4 red cards are drawn?
5. An oil company conducts a geological study that indicates that an exploratory oil well should have a 20% chance of striking oil. Obtain the probability that the first strike comes on the third well drilled?
6. A small voting district has 101 female voters and 95 male voters. A random sample of 10 voters is drawn. What is the probability exactly 7 of the voters will be female?
7. Identical computer components are shipped in boxes of 5. About 15% of components have defects. Boxes are tested in a random order. Identify the probability that a randomly selected box has only non-defective components?
8. A large group of students took a test in Physics and the final grades have a mean of 70 and a standard deviation of 10. If we can approximate the distribution of these grades by a normal distribution, determine the percent of the students  
   a) scored higher than 80.  
   b) should pass the test (grades≥60).  
   c) should fail the test (grades<60).