**1.** A student has to make 4 university entry exams. For passing each exam he gets either 2,3 or 4 points. He needs to reach at least 13 points to get to the university. In how many ways can he do the exams to be succesfull? (10 pts)

**Answer:**

**2.** In how many ways can we distribute eight identical white balls into four distinct containers so that

1. no container is left empty? (5 pts) Please construct a model (5 pts)

**Answer a)**

1. the fourth container has an odd number of balls in it? (10 pts) Please construct a model (5 pts)

**Answer b)**

**3.** Write the primitive statements of the following arguments and show them in tabular form. Then establish the validity of the argument using proof by contradiction. Please show the primitive statements as p, q, r, s, t, … . (25 pts)

*“The router can not send packets to the server if it does not support the new protocol. The necessary condition for the router to send packets to the server is that the latest software release be installed and there is a connection. There is a connection between the router and the server, but the latest software release is not installed. Therefore, The router does not support the new protocol.”*

**Answer:**

p:

*q:*

*r:*

*s:*

*Tabular form:*

Proof by contradiction:

**4.** The nine members of a volleyball team are to be randomly selected from nine college man and ten college women. To be classified as coed the team must include at least one player of each gender. What is the probability the selected team includes more women then men? (25 pts)

**Answer:**

**5.** Let

1. How many subsets B of A where B = │4│? (10p)

**Answer:**

1. Write a computer program or develop an algorithm that lists all subsets B of A where B = │4│. (Please display the all subsets). (5 pts)

**Answer:**