Attach all 5 python codes for Each Question like q1.py, q2.py, q3.py….

1. **Points on Same Circle** **20 Marks**

   You have given a set of 4 points P. Write an algorithm which will tell us whether these points are lying on the same circle or not.

   P = [(1,0),(2,-7),(8,1),(9,-6)]

2. **Interaction of Bounding Boxes** **20 Marks**

   B1 and B2 are 2 bounding boxes. Write an algorithm which will calculate the common area of these 2 bounding boxes. Also find the intersection points of those bounding boxes if they have any.

3. **P = [(1,0),(2,-7),(8,1),(9,-6),(8,2),(7,-7),(8,-7)]** **20 Marks**

   Print all possible triangles created by the above set of points.

4. **Closest special number** **40 Marks**

   A number X is said to be special, if It satisfies the given conditions:

   (1) Every digit i present in X, occurs i number of times in X

   (2) The count of even digits is equal to the count of odd digits. Same digits are considered only once. Example: 41444. has 1 odd digit I.e. “1” and 1 even digit i.e. “4”

   Example:

   If N = 2 then 122 is the smallest special number greater than N.

   For are given numbers N1, N2, N3. Determine the smallest special number for each.

   N1 = 5426

   N2 = 7440

   N3 = 451

5. **Shapes Detection** **100 Marks**

   (Download sample image from here -- https://drive.google.com/file/d/1STpG-457g9AhdVS24Ocb_jKFpS-GOVJ4/view?usp=sharing)

   For the above sample Image detect maximum possible shapes like line, circle, polyline, curves, labels and print them.