**F.1 Mathematics Selection Test 2012-2013**

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_( ) Time allowed: 35 minutes

Class:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Total marks: 30

Part 1 - (10 marks)

1. Find the value of http://www3.wolframalpha.com/Calculate/MSP/MSP40031a353e0i7iab7dcc000020c2e24067b50gch?MSPStoreType=image/gif&s=33&w=147&h=18

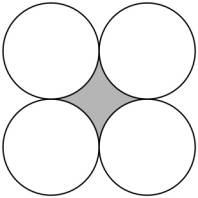
Answer:\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (2 mark)

1. 0.\dot{1}+0.58\dot{3}+0.\dot{8}\dot{1}=?

Answer:\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (2 mark)

1. Calculate 1+2+3+…+2011+2012+2011+…+3+2+1

Answer:\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (3 marks)

1. The four circles shown above touch two other circles tangentially and have a radius of 1.25cm. Find the area of the shaded region. (Express your answer in terms of http://www3.wolframalpha.com/Calculate/MSP/MSP11871a354dad38e201ab00001hdicd1a0h0e482h?MSPStoreType=image/gif&s=17&w=9&h=18)

Answer:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (3 mark)

Part 2 – (20 marks) (PLEASE SHOW YOUR STEPS CLEARLY)

1. Consider http://www4b.wolframalpha.com/Calculate/MSP/MSP9961a354cafcihf9d9h00004h7h4f6h8666idc0?MSPStoreType=image/gif&s=54&w=286&h=18

find the value of 14+24+34+44+…+994 (6 marks)

(Hint:

)

1. In how many possible ways can 10 identical balls be distributed to 3 distinct boxes so that every box contains at least one ball? (4 marks)
2. Find the value of http://www4a.wolframalpha.com/Calculate/MSP/MSP1151a354fe403b45i7500000d247fd32hgb1b06?MSPStoreType=image/gif&s=50&w=293&h=37.

(Hint: http://www4b.wolframalpha.com/Calculate/MSP/MSP19681a354dc5ei0iec76000055g4i8chc02bh15h?MSPStoreType=image/gif&s=64&w=136&h=36) (6 marks)

1. Write down all the prime numbers that are less than 200. (4 marks)

(1 mark will be deducted for every extra or missing number)

Answer:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

End of paper