**MATH 241: PROBABILITY AND STATISTICS II**

**CAT II**

**DATE OF SUBMISSION 21/12/2018**

1. Let  have a bivariate normal distribution with parameters   Find
2.  **(4 Marks)**
3.  **(4 Marks)**
4. The joint moment generating function of  and  is given by



Determine;

i) 

ii) 

iii) The m.g.f. of  **(10 marks)**

1. The joint density of  is given by



Let 

1. Find the joint density of 
2. Obtain the density of  and hence calculate 
3. Are  independent **(12 Marks)**