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5 Applicants for a pilot training programme with a passenger airline are screened for colour blindness. Past records show that the proportion of applicants identified as colour blind is 0.045

(a) Write down a suitable model for the distribution of the number of applicants identified as colour blind from a total of n applicants.

(1)

(b) State one assumption necessary for this distribution to be a suitable model of this situation.

(1)

(c) Using a suitable approximation, find the probability that exactly 5 out of 120 applicants are identified as colour blind.

(3)

(d) Explain why the approximation that you used in part (c) is appropriate.

(2)

Jaymini claims that 75% of all applicants for this training programme go on to become pilots.

From a random sample of 96 applicants for this training programme 67 go on to become pilots.

(e) Using a suitable approximation, test Jaymini's claim at the 5% level of significance. State your hypotheses clearly.

(7)

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Question 5 continued

(Total 14 marks)

Q5