RAMAKRISHNA MISSION VIDYAMANDIRA

(A Residential Autonomous College under University of Calcutta)

First Year, Second Semester (January – June), 2011
Mid-Semester Examination, March, 2011

ECONOMICS (Honours)

Date : 9 March 2011 Full Marks : 50
Time : 11am – 1pm

(Use separate Answer Script for each group)

Group – A

1. Answer **any three** questions:

   a) State and prove the Theorem of Total Probability considering n events. [5]

   b) Suppose n letters marked 1, 2, 3, .. n are placed at random in n envelopes also marked 1, 2, 3, .. n each letter being placed in only one envelope. What is the probability that none of them is placed in the right envelope? [5]

   c) Suppose a coin is tossed (m+n) times (m>n). What is the probability of getting exactly m consecutive Heads? [5]

   d) Draw the histogram of the distribution given below and obtain the number of persons having income between Rs. 1200 and Rs. 2600. [5]

Income (in Rs.)	No. of persons
0 - 500	3
500 - 1000	42
1000 - 2500	288
2500 - 3500	150
3500 - 4500	51
	Total = 534

   e) You are given the frequency table for a variable x :

value of x :	0	1	2	3	4	5	6	7
Frequency :	2	8	13	?	29	?	10	3

   If $\Sigma f_i = 100$, find the missing frequencies given that $\bar{x} = 3{\cdot}68$. [5]

2. Answer **any one** question :

   a) i) What is the probability that birth days of 7 people will fall on seven different days of the week?
   ii) Suppose 8 students are arranged at random in a ring. What is the probability that two given students will be next to each other?
   iii) Suppose 9 digits 1, 2, 3, ..., 9 are arranged at random to form a 9 digit number. What is the probability that the digit 1, 2, 3 will appear as neighbours in the order mentioned? [3+3+4]

   b) i) State and prove Bayes' Theorem.
   ii) An urn having capacity of containing 5 balls, has been filled up by taking 5 balls from another urn which originally had 5 white and 5 black balls. One ball is drawn from the first urn. It happens to be black. What is the probability of drawing a white ball from among the remaining 4 balls? [5+5]

   c) i) Prove that $AM \geq GM \geq HM$.
   ii) If x_1 and x_2 are two positive values of a variable, prove that their geometric mean is equal to the geometric mean of their arithmetic mean and harmonic mean. [7+3]

Group – B

3. Answer **any three** questions : [5×3 = 15]
   a) Briefly discuss some of the basic features of the Indian colonial economy.
   b) Analyse briefly the long-term objectives of planning in India.
   c) Mention the basic features and limitations of the Mahalanobis Strategy of planning in India.
   d) Mention the main causes of lower productivity in Indian agriculture.
   e) Briefly mention the basic features of economic reforms in India.

2. Answer **any one** question :
   a) Discuss and comment on the changes in occupational structure of the Indian economy in post independence period. [10]
   b) Write a note on land-reform in India during the plan period. [10]
   c) The history of development of the Indian industry in the post-independence period is one of 'growth as well as stagnation.' —Explain. [10]