RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College under University of Calcutta)

B.A./B.SC. FIRST SEMESTER EXAMINATION, DECEMBER 2012

FIRST YEAR

Date : 14/12/2012 **Economics (Honours)**

Time : 11am – 3pm Paper : I Full Marks : 100

(Use separate answer book for each group)

Group – A

1. Answer **any three** questions : [3×4]
   a) Mention some of the short comings of land reform in India.
   b) Mention the causes for 'Plan-holiday' in India in the mid-sixties.
   c) What do you mean by 'institutionalisation' of rural credit in India?
   d) What are the different ways of measuring poverty in India?
   e) Do you think that a second green revolution is necessary at present to raise the per capita availability of food grains in India?
2. Answer **any one** question : [1×8]
   a) Write a short note on the policy of disinvestment in the public sector units in India.
   b) Discuss briefly how the process of globalisation has affected the agricultural sector in the Indian economy.
3. Answer **any two** questions : [2×15]
   a) Discuss the nature of growth and deceleration of Indian industries in the post-independence period. Mention briefly how the policy of economic reform has affected the performance of industrial sector in India. (9+6)
   b) Analyse briefly the major changes in the sectoral composition of India's national income during plan period. What conclusions can be drawn from these changes about the transformation of India's economic structure? (9+6)
   c) Discuss how the process of economic reform in our country has affected employment situation in the recent past? Discuss also the impacts of economic reform on the incidence of poverty. (8+7)
   d) Critically discuss about the alternative explanations offered for the inverse relationship between farm size and productivity in India economy. Do you think that the relation is true to a certain extent only? (10+5)

Group – B

4. Answer **any four** question of the following: [4×5]
   a) State and prove Boole's inequality for n events $A_1, ...A_n$. (1+5)
   b) Find the M.G.F. of a binomial distribution and hence find its expectation. (3+2)
   c) Show that mean deviation of mean is independent of change in origin but depends on change in scale. (5)
   d) Show that the standard deviation of first n odd numbers is equal to the standard deviation of first n even numbers. (5)
   e) The following table gives distribution of income of households (in thousands) in a particular region:

Income (Rs):	20-29	30-39	40-49	50-59	60-69	70-79
% of households:	306	182	144	96	42	34

   Can you compute the standard deviation from the above data? Find the dispersion using a suitable measure. (5)

f) Give an example to show that the mutually exclusive events are pairwise independent, but the converse is not true. (5)

g) A panel of 12 members is drawn at random from a list of 1000 singers out of which 700 are non-trained classical vocalists and 300 are trained classical vocalists. What is the probability that the team will consist of all trained vocalists? (5)

5. Answer **any two** question of the following: [2×15]

a) i) Give an example of real-life situation where hypergeometric distribution is appropriate. (4)

ii) Find the mean and variance of a hypergeometric distribution. (3+4)

iii) A Poisson distribution has double modes at x=2 and 3. Find he probability that the variable will take value either 2 or 3. (4)

b) i) For a group of n observations show that $AM \geq GM \geq HM$. (8)

ii) If the values of a variable are in GP, then prove that AM, GM and HM of the values are also in GP. (7)

c) i) Probability that B will score a century in a test match is 1/10. He played in 10 practice matches and scored centuries in 4 of them. What is the probability that B will score a century in the test match? (5)

ii) Show that if X and Y are independent random variables, then E(XY) = E(X).E(Y) . (5)

iii) Derive Poisson distribution as a limiting form of a binomial distribution. (5)

d) i) The first of the two samples has 100 items with mean 15 and standard deviation 3. If the whole group has 250 items with mean 15.6 and standard deviation $\sqrt{13.44}$, find the standard deviation of the second group. (6)

ii) Prove that for any discrete distribution, standard deviation s not less than mean deviation from mean. (6)

iii) State the uses of HM. (3)