RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College under University of Calcutta)

B.A./B.SC. SIXTH SEMESTER EXAMINATION, MAY-JUNE 2013

THIRD YEAR

Date : 23/05/2013 — **Economics (Honours)**

Time : 11am – 3pm — Paper : VII — Full Marks : 100

(Use separate answer book for each group)

Group - A

1. Answer **any three** questions of the following : (3 × 4)
   a) Define 'Government failure' with suitable examples.
   b) What is 'missing women mystery'?
   c) What briefly is the basic idea of the Prebisch Singer thesis?
   d) How does Rostow's theory of economic growth provide an alternative attempt to Marxist interpretation of history.
   e) What are the consequences of gender-bias on health and education?
2. Answer **any one** question of the following : (1 × 8)
   a) Discuss briefly the role of FDI in promoting international transfer of technology.
   b) Discuss the relative merits of import substitution versus export promotion.
3. Answer **any two** questions of the following : (2 × 15)
   a) Discuss some of the arguments in favour of planning in a mixed economy like India. Mention in this context some of the cases in favour of decentralized planning. (10 + 5)
   b) Mention the major functions of The World Trade Organization. Discuss critically role of The World Trade Organization in the context of the developing countries like India. (5 + 10)
   c) Discuss briefly the process of transition from mercantilism to industrial capitalism in the context of Western Europe. How did this process of transition affect the 3rd world countries? (10 + 5)
   d) What are the major characteristics of MNCs? Critically examine how far the MNCs are responsible for the relatively high degree of capital intensity of production in the manufacturing sector of developing countries? (5 + 10)

Group - B

4. Answer **any four** questions of the following : (4 × 5)
   a) Suppose the income stream of a person is given by $y(t) = a(1-2\alpha t)$, while $r(1-\alpha t)$ is the continuous rate of interest. Find the capital value of the income stream over the period [0, x]. (5)
   b) Consider a market given by the following equations:
   $Q_{dt} = Q_{st}$
   $Q_{dt} = a - bP_t$
   $Q_{st} = - c + dP_t^*$
   Where P_t^* = Expected price for period t.
   Also $P_t^* = P_{t-1}^* + x[P_{t-1} - P_{t-1}^*]$, $(0 < x \leq 1)$
   is the 'adaptive' price expectation equation.
   Deduce the first order difference equation in P_t (actual price) from the above model. (5)
   c) Suppose that a consumer has a utility function $u(x_1, x_2) = x_1^{.5} x_2^{.5}$. He originally faces prices (1, 1) and has income 100. Then the price of good 1 increases to 2. What are the compensating and equivalent variations? (5)

d) What is a phase diagram? Draw the phase diagram for the first order differential equation $\frac{dy}{dt} = y - y^2$ and show that y = 1 is a stable equilibrium and y = 0 is an unstable equilibrium. (5)

e) Show that the Arrow -Pratt measure of absolute risk aversion is proportional to the amount an individual will pay for insurance against taking a fair gamble. (5)

f) Consider a Simple Keynesian model with the following equations:
$C(t) = a + bY(t),\ a > 0,\ 0 < b < 1$

$I(t) = k.\frac{dC}{dt},\quad k > 0$

and Y(t) = C(t) + I(t)

Find the condition for dynamic stability of equilibrium. (5)

g) Let the demand and supply be $Q_d = 10 - P - 4P' + P''$, $Q_s = -2 + 2P + 5P' + 10P''$

with P(0) = 5 and P'(0) = $\frac{1}{2}$

Find the time path of price assuming market clearance at each point of time. Is it convergent? (4+1)

h) Suppose a person's utility function is u(w) = log w, where w is the wealth (in Rs.) earned in the gamble. He takes the following gamble : A fair coin is tossed until a "Head" occurs. The person wins Rs. 2^{n-1} if Head appears at the n-th toss. What is the expected utility of such a gamble? What is the certainty equivalent? (3+2)

5. Answer **any two** questions of the following : (2 × 15)

a) Let an economy be characterised by:

$$p = \frac{1}{6} - 3u + \frac{1}{3}\pi$$

$$\frac{d\pi}{dt} = \frac{3}{4}\ p - \pi$$

$$\frac{du}{dt} = -\frac{1}{2}(m - p)$$

Where, p = rate of inflation
u = rate of unemployment
π = expected rate of inflation
t = time

i) Find the time paths of p(t), π(t) and u(t) (4 + 4 + 4)

ii) What are the values of $\bar{p}$ and $\bar{u}$, the inter temporal equilibrium values of p and u? (1½ + 1½)

b) Consider a Walrasian price adjustment model

$$\frac{dP}{dt} = \alpha\ q^d - q^s \qquad \alpha > 0$$

Where q^d = a+bP is the demand function and q^s = mN is the supply function. P is the price, N is the number of firms in the industry. The number of firms adjusts according to $\frac{dN}{dt} = \beta\ P - \bar{c}$, $\beta > 0$ where $\bar{c}$ is the fixed average cost of production. Firms enter the market i.e. $\frac{dN}{dt} > 0$ if $(P - \bar{c}) > 0$. Solve the system of differential equations by direct method and find out the time paths P(t) and N(t). Derive the stability conditions. State the importance of eigenvalues in the solution. (10 + 3 + 2)

c) Consider a person with a current wealth Rs. 20,00,000 who faces the prospect of a 30% chance of losing his car valued at Rs. 3,00,000 through theft during the next year. Suppose that the person's utility function is given by U(W) = ln (W). Suppose also that the person can take the precaution of installing a car alarm that costs Rs. 8,000 and that

reduces the probability of theft to 15%.

i) Show that in absence of the alarm, the maximum premium the person will be willing to pay is greater than the premium of a fair insurance.

ii) Show that in case no insurance is available, the person is better off in buying the alarm.

iii) Find the first-best insurance premium in case the company can costlessly verify that the person has installed the alarm. (5 +5 + 5)

d) i) Set up the Solow growth model and form the differential equation in k (capital per worker).

ii) Show that if total capital is growing at the rate 'n' (the rate at which the labour force grows), net investment I must also be growing at the rate 'n'.

iii) Find the time path of capital stock per worker considering the production function in the form $Y = K^{\alpha}L^{1-\alpha}$, $0 < \alpha < 1$

iv) Show that the equilibrium or steady-state level of capital per worker varies directly with the saving rate 's' and inversely with the rate of growth of labour force 'n'. (5 + 2 + 5 + 3)