RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College affiliated to University of Calcutta)

B.A./B.Sc. SIXTH SEMESTER EXAMINATION, MAY 2019

THIRD YEAR [BATCH 2016-19]

Date : 10/05/2019 **ECONOMICS (Honours)**

Time : 11 am – 3 pm **Paper :** IX Full Marks : 100

[Use a separate Answer Book for each Group]

Group - A

1. Answer **any six** questions: [6 × 5]

a) Show that the function $f(x_1, x_2) = x^2 + xy + y^2$ is convex. [5]

b) Show that the function $x_1^{\frac{1}{4}} x_2^{\frac{1}{3}} x_3^{\frac{1}{4}}$ satisfies the conditions of quasiconcavity and strict concavity. [2.5+2.5]

c) Suppose a student has to allocate his available study time of 60 hours per week between two subjects so as to maximise his grade average. The grades obtained in the two subjects are dependent on the time they allocate in the two subjects in the following way — [5]

$g_1 = 20 + 20\sqrt{t_1}$ and $g_2 = -80 + 3t_2$

Find out the optimal time allocated by the students in the two subjects.

d) Suppose an agent consumes quantity (x_1, x_2) of goods 1 and 2. He has utility $u(x_1, x_2) = x_1 x_2^{\,2}$, the prices of the goods are (p_1,p_2).

i) Set up the expenditure minimization problem.

ii) Derive the agent's Hicksian demands.

iii) Derive the agent's expenditure function. [1+2+2]

e) Verify the Envelope theorem for the following function:

$f(x, y, a) = ax^2 - 2x + y^2 - 4ay$ [5]

f) Suppose that the consumer is maximizing $u(x, y) = \log x + y$, subject to px+y = M. Derive indirect utility function, and show Slutsky equation to decompose the change of demand for x into Income effect and Substitution effect. [2.5+2.5]

g) Solve the problem —

max $x^2 + 2y$ sub to $x^2 + y^2 \le 5$. [5]

h) State the properties of profit function. [5]

i) Solve the following problem assuming $\rho - r < 0$ [5]

$$\max \int_0^{\infty} e^{-\rho t}\left[c - ac^2\right] dt$$

sub to $\dot{x} = rx - c$; $x(0) = x_0$; $x(t) \geq 0$

j) In a perfectly competitive market demand and supply curves of a commodity are — [5]

$p_d = 10 - q$

$p_s = q + 2$

Find the consumer's surplus at the equilibrium price.

k) Suppose the inter-industry flows of the products of two industries are as follows —

Production Sector	Consumption Sector		Final Demand	Total Output
	X	Y		
X	30	40	50	120
Y	20	10	30	60

Determine the technology matrix and the Hawkins-Simon condition.

l) Find the general solution of the equation: $y''(t) - 3y = 0$ [5]

2. Answer **any two** questions : [2 × 10]

a) i) Describe, in brief the envelope theorem. [4]

ii) Suppose a consumer faces the following utility function $U = (x+2)(y+1)$. If $Px = 4$, $Py = 6$ and M = 3. Find the optimal levels of x and y and check the second order conditions. [6]

b) i) Find the stability of the market characterized by $D = 10 - 2P$; $S = -3 + 3P$; $\frac{dp}{dt} = 4(S - D)$ [5]

ii) Consider a closed economy without government characterized by — [5]

$C_t = .5Yt + .4Y_{t-1} + 300$

$I_t = 0.2Y_{t-2} + 200$

$Y_0 = 6500$

Find the equilibrium national income and examine the stability of the equilibrium.

c) i) Consider that an individual faces an hourly deterministic wage (w) and non-labour income (N). Define the hours worked as h and T as the time endowment and y being the total income. His utility is a function of leisure (l) and consumption (c). Derive his optimal labour supply function. The following assumptions can be made about the utility function: 1) Increasing in total income y, and the leisure l (decreasing in h) ; 2) leisure and consumption are normal good. [5]

ii) Suppose a consumer lives for two periods and his utility function is given by $U = C_1C_2$. The consumer's present income is Rs. 10000.00 and future income is Rs. 5250, in two period framework. Find his optimal consumption expenditure if the prevailing rate of interest is 5 % and there is no permanent saving. [5]

Group – B

3. Answer **any four** questions : [4×3]

   a) Mention in brief the components of the service sector in India.

   b) What is Fiscal Federalism?

   c) What do you mean by the 'controlled expansion' policy of the RBI?

   d) Distinguish between Repo Rate and Reverse Repo Rate.

   e) What is FRBM Act?

   f) What is meant by convertibility of rupee in the capital account?

   g) Define the policy of import substitution.

   h) What is Fiscal Deficit? How does it differ from Budget Deficit?

2. Answer **any one** question : [1×8]

   a) Critically evaluate major reforms introduced in the Indian capital market in the recent period.

   b) Discuss the policy of "controlled expansion" followed by the R.B.I.

3. Answer **any two** questions : [2×15]

   a) i) Mention in brief the important causes of the growth in service sector in India.

   ii) State in brief the important international factors that favour the growth of service sector in India.

   iii) What is GST? What are the three components of GST? What are the proposed benefits of GST? [5+5+5]

   b) Discuss the major changes in India's EXIM policy during the post reform period. [15]

   c) Discuss the major changes in the policy of the Government of India towards foreign capital and investment in the last two and a half decades. Examine critically the role of the foreign capital in Indian Performance in recent years. [8+7]

   d) What were the major weaknesses of Indian Tax structure that prevailed prior to initiation of economic reforms in India? What measures were adopted to get rid of the weaknesses? [7+8]

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