RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College affiliated to University of Calcutta)

SECOND YEAR [2017-20]

B.A./B.Sc. THIRD SEMESTER (July – December) 2018

Mid-Semester Examination, September 2018

Date : 24/09/2018 **ECONOMICS (Honours)**

Time : 11 am – 1pm Paper: III Full Marks : 50

[Use a separate Answer Book for each group]

GROUP – A

Answer **any two** questions of the following: [2 × 5]

1. Suppose the set of all possible outcomes is C = {C_1 , C_2 , C_3} and consider a compound lottery

$(L_1, L_2, L_3; \alpha_1, \alpha_2, \alpha_3)$ such that $L_1 = \begin{pmatrix} 1 \\ 0 \\ 0 \end{pmatrix}$; $L_2 = \begin{pmatrix} \frac{1}{4} \\ \frac{3}{8} \\ \frac{3}{8} \end{pmatrix}$; $L_3 = \begin{pmatrix} \frac{1}{4} \\ \frac{3}{8} \\ \frac{3}{8} \end{pmatrix}$ and $\alpha_1 = \alpha_2 = \alpha_3 = \frac{1}{3}$

a) Find the simple lottery that corresponds to the compound lottery $(L_1, L_2, L_3; \alpha_1, \alpha_2, \alpha_3)$.

b) If a consumer believes that the compound lottery $(L_1, L_2; \alpha_1, \alpha_2)$ is the same as the compound lottery $(L_1, L_2, L_3; \alpha_1, \alpha_2, \alpha_3)$ in terms of their simple representation, then find the value of α_4 and α_5 where $L_4 = \begin{pmatrix} \frac{1}{2} \\ \frac{1}{2} \\ 0 \end{pmatrix}$ and $L_5 = \begin{pmatrix} \frac{1}{2} \\ 0 \\ \frac{1}{2} \end{pmatrix}$ (2 + 3)

2. i) Suppose that the utility of wealth for a consumer is $u(W)=W^{\alpha}$. If the utility of wealth corresponding the certainty equivalent income of the gamble, which gives Rs 100 with probability $\frac{1}{2}$ and Rs 9 with probability $\frac{1}{2}$, is $\frac{13}{2}$, then find at least one value of α.

ii) "Suppose that the consumer has Rs 100. However, he has the option of buying a lottery that will cost him Rs 50. If purchased, the lottery pays Rs 350 with probability 0.6 and Rs 0 with probability 0.4. If the certainly equivalent corresponding to this gamble is Rs 265, then the consumer is risk averse." True of False? (3 + 2)

3. Let u and v be two utility functions of a risk averse consumer, with $v(W) = f(u(W))$, where f is concave and $f' > 0$. Prove that the coefficient of absolute risk aversion for the utility function $g(W) = \alpha v(W) + (1-\alpha)u(W)$, where $0 < \alpha < 1$, is greater than that for $u(W)$.

Or, (5)

Prove that, in the case of fair insurance the risk average consumer always selects full insurance. What if the consumer is risk-neutral? Argue logically.

GROUP – B

4. Answer **any one** question of the following: [1 × 5]

a) Let two brothers are stranded in an island who live off by gathering wild apples (A) and bananas (B). On a typical day, they gather a total of 4 apples and 2 bananas. The utility functions of the elder brother (E) and the younger brother (Y) are given by $u_E = A_E^2 + 4A_E B_E + 4B_E^2$ and $u_Y = A_Y + B_Y$ respectively.

i) Find the contract curve of the economy.

ii) If on any day, the endowments of A and B for E and Y are given by (3,1) and (1,1) respectively, then check if {P=(1,1), (A_E, B_E)=(2,2), (A_Y, B_Y)=(2,0)} constitutes a competitive equilibrium. (3 + 2)

b) Suppose that the *Association of Drama Artists* is facing a drama company *Drama works Inc.* who acts as a competitor in the actors' market. Determine the salary and employment levels using appropriate economic logic and diagram if the *Association* desires to maximize

i) total payments to the actors;

ii) total hiring of actors. (3 + 2)

5. Answer **any one** question of the following: [1 × 10]

a) i) Please state the most general form of the Second Welfare Theorem for an economy with production.

ii) Now provide an indirect proof of a version of this theorem, after restating the statement of the theorem accordingly.

iii) Please mention one example (along with a diagram) where this theorem does not hold. (2 + 5 + 3)

b) Consider a firm in the long run which uses labor and capital as the only factor inputs. Using *Revealed Profitability* arguments, show:

i) the output supply function has a non-negative slope;

ii) the factor demand functions have a non-positive slope. (5 + 5)

GROUP – C

6. Answer **any one** question of the following: [1 × 5]

   a) What is Gender Development Index?

   b) Define PPP measure.

   c) Define the notion of capability as explained by Amartya Sen.

7. Answer **any two** questions of the following: [2 × 10]

   a) Define the ideas of complementarity and coordination failure. Explain these ideas using multiple equilibrium model. (4 + 6)

   b) i) Distinguish between the notions of economic growth and economic development.

      ii) Do you think per capita income of a country can be considered as a proper index of economic development of that country? Give reasons. (4 + 6)

   c) Discuss the process of demographic transition and its implications in economic development of a country.

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