Use Separate answer book for each group

M.A. Semester-I Examination 2014
Rural Development
Paper-III

Time : Four Hours **Full Marks : 80**

Questions are of value as indicated in the margin.

Group - A
(Demographic Dynamics)

Answer Question **No.6** and any three from the rest.

1. Trace the evolution of Demographic Perspective on human development from doctrine age to modern age of transition theories. 12

2. Define population pressure. Discuss the concepts of overpopulation, under population and optimum population in the above connection. 3+9=12

3. (i) What do you mean by carrying capacity and migration in the context of population dynamics?

   (ii) Let $P_2=(P_1(1+r)^t$, where, in a certain region, P_2 is the population at the end of a time period, P_1 is the population at the begining of the time priod, r is the average rate of increase in population per unit time and t is the number of years from the begining to the end of the time period. Now if the population in a certain region is 8,79,000 in 2012 and the average rate of increase is 2.5% per year, then how many years will be needed to reach a population of size 10,00,000? (Given log 879000=5.9440, log 1.025= 0.0172). 5+7=12

4. (a) Define GRR and NRR.

   (b) What is meant by saying that NRR for a country is (i) 1.29, (ii) 1 ?

   (c) Calculate the GRR and NRR from the following table - (2+2)+(1+1)+(3+3)=12

Age (years)	Female Population ('000)	Female Births	Survival rate
15-19	1558	18,900	0.914
20-24	1112	71100	0.899
25-29	1595	96900	0.884
30-34	1629	64200	0.868
35-39	1627	34900	0.852
40-44	1522	10800	0.834
45-49	1401	800	0.813

5. (a) Discuss the objectives of India's Population Policy adopted in the year 2000.

   (b) Mention a few important measures adopted by the Government of India during that period for encouraging the couples to accept small family norms. 7+5=12

6. Write a short note on **any one** of the following : 4

   (a) Neo-natal Mortality rate (b) Celibacy (c) Life-table

Group - B
(Quantitative Techniques for Rural Development-I)

Answer Question **No.6** and any three from the rest.

1. With the help of suitable examples distinguish between.

   (a) Class limits and class boundaries of a frequency distribution. 4×3=12

   (b) Histogram and bar diagram

   (c) Discrete and continuous variables.

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2. (a) What do you mean by the central tendency of a frequency distribution? Describe the different measures of central tendency and justify why in most cases the A.M. is considered to be the best measure of central tendency.

   (b) The arithmetic mean calculated from the following frequency distribution is 67.45 inches.

Height (inches)	60 – 62	63 – 65	66 – 68	69 – 71	72 – 74
Frequency	15	54	y	81	24

(2+4)+6=12

Calculate y

3. (a) Define coefficient of variation and discuss its uses.

   (b) All the obsservations on a variable x have the same value k. What are the mean and standard deviation of x ?

   (c) Two samples of sizes 60 and 90 have 52 and 48 as respective arithmetic means and 9 and 12 as respective standard deviations. Find the arithmetic mean and the standard deviation of the combined sample of size 150. 5+2+5=12

4. (a) Are the following statements valid?

   (i) A positive value of correlation coefficient between x and y implies that as x increases y decreases.

   (ii) Correlation coefficient r_{xy} is independent of the unit of measurement.

   (iii) $r_{xy} = -1.02$

   (iv) $u_i = \frac{x_i - 3}{2}$ and $v_i = \frac{y_i - 1}{-6}$; i = 1,2,...n

   If $r_{uv} = 0.2$ then $r_{xy} = -0.2$

   (b) The per capita income and per capita consumption expenditure (both in hundred rupees) during a month are given below for 10 families.

Income (in 100 rupees)	9	13	11	15	21	13	19	20	18	17
Consumption expenditure (in 100 rupees)	7	9	8	11	15	8	11	12	15	13

Calculate the product moment correlation coefficient between per capita income and per capita consumption expenditure. 4+8=12

5. For 10 pairs of observations on x and y, the following totals are given. Obtain the correlation coefficient between x and y and also the two regression lines 4+4+4=12

$\Sigma x = 12$, $\Sigma y = 4$, $\Sigma x^2 = 16.20$, $\Sigma y^2 = 1.96$, $\Sigma xy = 5.2$

6. Write a short note on **any one** of the following : 4

   (a) Spearman's rank correlation for untied case

   (b) Properties of linear regression

   (c) Ogive