RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College under University of Calcutta)

B.A./B.SC. SECOND SEMESTER EXAMINATION, MAY 2012

FIRST YEAR

Date : 21/05/2012

ECONOMICS (Honours)

Time : 11 am – 3 pm

Paper : II

Full Marks : 100

[Use Separate Answer Books for each group]

Group - A

1. Answer **any three** of the following : [4×3]

   a) Mention two features of the Indian economy on the eve of independence.

   b) What are the various types of credit the rural people in India need?

   c) Mention some of the impacts of globalization on Indian agriculture.

   d) Define the concept of 'exit policy' in the context of Indian industrialisation.

   e) Comment on the estimates of Shakuntala Mehra regarding the measurement of disguised unemployment in India.

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

   a) Discuss the significant structural changes that have taken place in the Indian economy during the plan period.

   b) Discuss briefly the impacts of economic reform on the nature and extent of poverty in India.

3. Answer **any two** questions :

   a) Do you think that land reform is a necessary condition for agricultural development in LDCs? Discuss this in light of the New Agricultural strategy applied in Indian agriculture. [6+9]

   b) Discuss in brief the general problems of the public sector undertakings in India. What are the main features of the policy of the Government towards the public sector in the post liberalization period?

   [8+7]

   c) Examine the alternative explanations offered for the inverse relationship between farmsize and productivity in the Indian Economy. Indicate the policy implication of this relationship. [10+5]

   d) Discuss briefly the trend and pattern of unemployment in India in the post-reform period. Mention in this context the role of the National Rural Employment Guarantee Scheme. [9+6]

Group - B

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

   a) State which of the following represent discretedata and which represent continuous data.

      i) Age of college professors

      ii) Annual income of employees of a firm

      iii) Number of students in different classes

      iv) temperature readings

   b) Prove that : $n! < \left(\dfrac{n+1}{2}\right)^n$ where $n \geq 2$ is a positive integer.

   c) Distinguish between absolute and relative measures of dispersion.

   d) Prove that Laspeyres' and Paasches' index numbers will be equal if the prices of all goods change in the same ratio.

   e) What is the probability that a leap year selected at rondom will contain 53 Tuesdays?

5. Answer **any one** questions : [1×8]

a) i) If a variable takes the values 1, 2, ... r with F_1, F_2, ..., $F_r(=n)$ as the corresponding less than type cumulative frequencies, then prove that—

$$\bar{x} = (r+1) - \frac{1}{n}\sum_{i=1}^{r}F_i$$

ii) "After settlement the average weekly wage in a factory had increased from rupees 8 to 12 and the standard deviation had increased from rupees 1 to 15 After settlement the wage has become higher and more uniform." Comment. [4+4]

b) Find the mean and variance of Poisson distribution using moment generating function. [8]

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

a) A) Are the following statement consistent?

i) standard deviation of $x = 2\cdot8$, mean deviation about $\bar{x} = 3\cdot2$.

ii) $n = 10$, median of $x = 5, \sum_{i=1}^{10}x_i = 40, \sum_{i=1}^{10}|x_i - 5| = 25, \sum_{i=1}^{10}|x_i - 4| = 27$.

iii) For a variable x, mean = 8, median = 4 and variance = 3·24

iv) For a variable x with range 6, the variance cannot be more than 9.

B) Given below are the average wages in rupees per hour for unskilled workers in a factory during the year 1975-80. Also shown is the Consumer price index for these years (taking 1975 as base year with Price index 100). Determine the real wages of the workers during 1975-80 compared with their wages in 1975.

Year	1975	1976	1977	1978	1979	1980
Consumer Price Index	100	120·2	121·7	125·9	129·3	140·0
Average Wage (Rs/hour)	1·19	1·94	2·13	2·28	2·45	3·10

[8+7]

b) i) State and prove the Bayes' theorem.

ii) The probabilities of solving a problem by three students A, B and C are $\frac{3}{7}$, $\frac{3}{8}$ and $\frac{1}{3}$. If all of them try independently, find the probability that the problem could be solved by one person only. Find also that the problem is not solved. [7+8]

c) i) Distinguish between pairwise independence and mutual independence of events.

ii) Let X be a continuous random variable with p.d.f.

$$f(x) = \begin{cases} ax & , & 0 \le x \le 1 \\ a & , & 1 \le x \le 2 \\ -ax + 3a & , & 2 \le x \le 3 \\ 0 & , & \text{elsewhere} \end{cases}$$

Determine the constant a and compute $P(x \le 1\cdot5)$.

iii) Give the limitations of classical definition of probability. [5+6+4]

d) i) Define a Normal distribution and show that it is symmetric about μ.

ii) In a distribution exactly normal, 10·03% of the items are under 25kg weight and 89·97% of the items are under 70kg weight. What are the mean and standard deviation of the distribution?

Given $\int_{-\infty}^{1\cdot28} \frac{e^{-\frac{z^2}{2}}}{\sqrt{2\pi}}dz = 0\cdot8997$.

iii) If X is a Poisson variate such that $P(X = 2) = 9P(X = 4) + 90P(X = 6)$. Find the parameter λ, the mean of X and the skewness of X. [4+6+5]

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