(d) Define the term risk premium. 2

(e) If $\mu_1 = 0.14$, $\mu_2 = 0.08$, $\sigma_1 = 0.2$, $\sigma_2 = 0.15$ and $r_{12} = 0$, $w = 0.36$, then for the current portfolio, find $E(R)$ and σ_R 3

(f) State and explain the properties of the utility function. 2

Unit - V

9. (a) What is Data Science? Explain why the importance of Data Science has increased of late. 2+2=4

(b) Explain the concept of variety, volume, velocity, veracity and value concerning big data with examples. 10

10. (a) What is Hadoop and what is it used for? 5

(b) Explain some metric of performance measurement of footballers' playing in different positions. 6

(c) Bhubeneshwar Kumar bowling in today's match conceded 36 runs in 8.2 overs and took 3 wickets. Compute his combined bowling rate. 3

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PG EVEN SEMESTER EXAMINATION, 2024

STATISTICS

4th Semester

Course No. : STS - 653(i) ECC

(Applied Statistics–II)

Full Marks : 70

Pass Marks : 28

Time : 3 hours

The figures in the margin indicate full marks for the questions

(Answer five questions taking one from each unit)

Unit - I

1. (a) Describe columns of the cohort life table. Mention any two real life structure where it is useful. 6+4=10

(b) Define standardized death rates, its utility and practical significance in demographic studies. 4

2. (a) Define three period measures of fertility. 6

(b) Define the following terms with example : 2x4=8

i) In-migration

ii) Immigration

iii) Out-migration

iv) Emigration

(Turn Over)

Unit - II

3. (a) Explain Gross Reproduction Rate (GRR) and Net Reproduction Rate (NRR) growth. What are the assumptions of GRR and NRR. Explain the meaning of NRR = 1, NRR > 1 and NRR < 1. 6+2+2=10

   (b) Write a short note on Labour Force Projection. 4

4. (a) Describe population projection using component method and provide a suitable example. 7

   (b) Discuss population projection using Leslie Matrix and write its advantages over component method. 7

Unit - III

5. (a) Describe Gini Coefficient as a measure of inequality in incomes stating its assumptions and limitations. 7

   (b) Discuss Theil's measure for measuring inequality in incomes and provide a suitable example. 7

6. (a) Describe different measures of poverty and different issues associated with the measurement of poverty. 7

   (b) Explain measures of incidence and intensity in poverty measurement. 7

Unit - IV

7. (a) Define the term price elasticity of demand. The quantity demanded by a consumer at price Rs. 9 per unit is 800 units. Its price falls by 25% and quantity demanded rises by 160 units. Calculate the price elasticity of demand. 2+2=4

   (b) Prices and dividends of a stock are given in the following table below : 2+1+2=5

t	Pt	Dt
1	51	0.2
2	56	0.2
3	53	0.25
4	58	0.25

   i) What is R_2?

   ii) What is $R_4(3)$?

   iii) What is r_3?

   (c) Define random walk. Explain when a random walk converges to Brownion motion and a geometric random walk converges to geometric Brownion motion. $2^1/_2+2^1/_2=5$

8. (a) Explain the factors on which the demand for a product depends on. 3

   (b) Wtate the two principles upon which the portfolio theory is based. 2

   (c) Suppose you want an unexpected return of 0.10 What should w? 2