5 SEM TDC DSE STS (CBCS) 4 (H)

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(Held in January/February, 2022)

STATISTICS

(Discipline Specific Elective)

(For Honours)

Paper : DSE–4

(Demography and Vital Statistics)

Full Marks : 50
Pass Marks : 20

Time : 2 hours

The figures in the margin indicate full marks
for the questions

1. Choose the correct answer from the given
   alternatives in each :   1×5=5

   (a) In dependency ratio, the number of
   dependents is defined as

   (i) those aged 64 and over

   (ii) those aged 15 and under

   (iii) those aged 15 and under plus 64
   and over

   (iv) None of the above

(Turn Over)

(b) In calculating rates of vital events, a multiplier is used to round off the decimals is known as

    (i) cohort

    (ii) radix

    (iii) Both (i) and (ii)

    (iv) None of the above

(c) e_x^0, the complete expectation of life, is nothing but

    (i) $\dfrac{T_x}{l_x}$

    (ii) $\dfrac{l_x}{T_x}$

    (iii) $T_x + l_x$

    (iv) $\dfrac{T_x}{T_x + l_x}$

(d) Crude rate of natural increase is (with usual notation)

    (i) $\dfrac{CBR}{CDR} \times 100$

    (ii) $CBR - CDR$

    (iii) $CBR + CDR$

    (iv) $CBR \times CDR$

         (*Continued*)

(e) Pearl's vital index is defined as

(i) $\dfrac{\text{Number of births in the given period } t}{\text{Number of deaths in the given period } t} \times 100$

(ii) $\dfrac{\text{CBR}}{\text{CDR}} \times 100$

(iii) Both (i) and (ii)

(iv) None of the above

2. Answer the following questions in brief :

2×5=10

(a) What is the biological theory of population?

(b) Define Infant Mortality Rate and mention the importance of IMR.

(c) Define maternal mortality rate.

(d) How does an abridged life table differ from a complete life table? Name three principal methods used for the construction of abridged life table.

(e) Why is NRR interpreted as the rate of replenishment of the population?

(*Turn Over*)

3. (a) (i) Explain the theory of demographic transition. 4

      (ii) Write a note on population balancing equation. 3

Or

(b) Write an explanatory note on Chandrasekar-Deming formula to check the completeness of registration data. 7

4. (a) (i) Define vital event, rate of vital event, cohort and dependency ratio. 4

      (ii) What are the sources of demographic data in India? Enumerate them. 6

Or

(b) What is Crude Death Rate? Explain why the mortality situations of two places should not be compared on the basis of CDR. Describe the construction of standardized death rates and indicate why they are considered to be better for the said comparison. 2+2+4+2=10

5. (a) Define stationary population, stable population, central mortality rate and force of mortality. 1½+1½+2+2=7

Or

(b) What is a life table? What are the basic assumptions in its construction? Explain the various columns of a life table and relations between them.

$$1+2+4=7$$

6. *(a)* What is meant by fertility? Describe the various fertility rates commonly used and discuss their relative merits. $2+9=11$

Or

(b) Define Gross and Net Reproduction Rates. Does gross reproduction rate differ from total fertility rate? Show that NRR cannot exceed GRR. Interpret the results NRR <=> 1. $3+3+1+2+2=11$

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