Federal Board HSSC-II Examination

Model Question Paper Practical Statistics

Time allowed: 3 hours **Marks: 20**

Note: Attempt all questions. Each question carries equal marks.

Q.No.1. Test the hypothesis that hair colour is independent of hair colour by calculating the chi-Square. Use $\alpha = 0.05$. **(07)**

Eye colour	Hair colour		
	Fair	Brown	Black
Blue	15	5	20
Grey	20	10	20
Brown	25	15	20

OR

A population consists of values 2, 4, 5, 7. Draw all possible samples of size 2 with replacement and find mean of each sample. Make a sampling distribution of $\bar{X}$ and verify that: **(07)**

(i) $\mu_{\bar{X}} = \mu$

(ii) $\sigma_{\bar{X}} = \frac{\sigma}{\sqrt{n}} \left(\frac{N_n}{N_1}\right)$

Q.No.2. Two independent groups, each of 100 students , obtain the following scores in general knowledge. Group A: 7, 7, 6, 7, 9, 6, 8, 6, 6, 20 and Group B: 6, 6, 4, 7, 8, 6, 6, 5, 6, 8. Is the difference between mean scores of the two groups significant? Use 5% level of significance. **(07)**

OR

The daily water consumption X (in liters) of households in a housing society is normally distributed with a mean (μ) of 450 liters and a standard deviation (σ) of 75 liters. **(07)**

(a) Find the probability that a randomly selected household consumes more than 550 liters of water.

(b) Out of a random sample of 400 households, how many would you expect to consume less than 320 liters?

Viva voce marks **(03)**

Practical Note book marks **(03)**