

SECTION B

(Answer any three; Save all output and graph in one folder with your roll number)

Q. 2. Using the excel data (Q2 Data HM2018.xlsx) provided to you (the sheet 1 contains data and sheet 2 contains variable details): [20 Marks]

- a) Create an SPSS data file. Define all characteristics (Variable & Value labels) of the variable in "variable view". Save the SPSS file in the name "Q3. Data_HM2018" in your answer folder.
- b) Find out the average income (in thousand) of person and the percentage of individual "highly satisfied with their job".
- c) Cross tabulate job satisfaction (jobstat) with income category (inccat). Find what percentage of individuals having income of \$25-\$49 thousand income are 'highly satisfied' with their jobs.

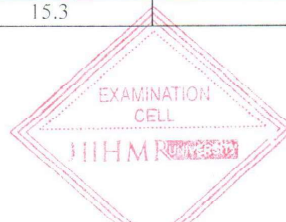
Q.3. The SPSS data for India is given to you (Q3_HM_data_India). Using the data: [20 Marks]

- a) Create a separate dataset for Rajasthan and save it as "HM_Data_Rajasthan" in the answer folder.
- b) Recode the value labels "Source of drinking water" into a different variable "water_s" with value labels as 1 "Piped water (old code 10-13)" 2 "Tube well (old code 20-21)" 3 "Dug well (old code 30-32)" 4 "Others (all other values)". Save the data.
- c) Cross tabulate "water_s" with "type place of residence" and "religion" and find out what percentage of household from "Rural" and "Hindu religious" group are using piped water in Rajasthan.

Q.4. Prepare appropriate graph/s for the following table using MS Excel (file: Q4_Table for Graph) and interpret the result in your answer sheet. [20 Marks]

Table 1: Percentage of underweight by different socio-economic and demographic characteristics of children in rural Kerala, 2005-06

Background Characteristics	Underweight (%)	Background Characteristics	Underweight (%)
Religion		Mass Media Exposure	
Hindu	16.4	No exposure	17.2
Others	15.4	Have exposure	11.4
Caste		Age of Child (Months)	
SC & ST	26.1	0-11	26.4
OBC	17.7	12-23	17.8
Others	15.3	24-35	15.8
Standard of living index		36-47	14.3
Low	24.5	48-59	14.2
Medium	16.4	Has diarrhoea recently	
High	15.2	No	15.5
Mother's Education		Yes	24.2
No education	16.7		
Upto secondary	16.1		
Higher	15.3		



Q5. One method for assessing the effectiveness of a drug is to note its concentration in blood and/or urine samples at certain periods of time after giving the drug. Suppose we wish to compare the concentrations of two types of aspirin (types A and B) in urine specimens taken from the same person, 1 hour after he or she has taken the drug. Hence a specific dosage of either type A or type B aspirin is given at one time and the 1-hour urine concentration is measured. One week later, after the first aspirin has presumably been cleared from the system, the same dosage of the other aspirin is given to the same person and the 1-hour urine concentration is noted. Since the order of giving the drugs may affect the results, a table of random numbers is used to decide which of the two types of aspirin to give first. This experiment is performed on 10 people; the results are given in the following table. **[20 Marks]**

Concentration of aspirin in urine samples:

Person	Aspirin A 1-hour concentration (mg %)	Aspirin B 1-hour concentration (mg %)
1	15	13
2	26	20
3	13	10
4	28	21
5	17	17
6	20	22
7	7	5
8	36	30
9	12	7
10	18	11



Suppose we wish to test the hypothesis that the concentrations of the two drugs are the same in urine specimens.

- What are the appropriate hypotheses? (6 marks)
- Conduct the appropriate test and interpret the result. (14 marks)

Note: Use SPSS Data Q5_data_HM to answer the question

Q6. The following table shows data from a case-control study carried out among swimmers to investigate the possible association between exposure to chlorinated swimming pool water and erosion of dental enamel.

[20 Marks]

Table: Comparison of number of hours' swimming by swimmers with or without erosion of dental enamel (Centerwall et al., 1986)

Amount of swimming per week	Erosion of dental enamel		Total
	Yes (cases)	No (controls)	
≥ 6 hours	32	118	150
< 6 hours	17	127	144
Total	49	245	294

Test the hypothesis that enamel erosion is related to amounts of swimming (and hence exposure to chlorinated water)? Let $\alpha = .05$

Note: Use SPSS Data Q6_data_HM to answer the question