



# *Appendices*

## APPENDIX I

### AN INTERVIEW SCHEDULE TO STUDY THE ACCEPTABILITY AND SUPPLEMENTATION OF RED PALM OIL ON SELECTED TARGET GROUPS

#### I. IDENTIFICATION OF COMMONLY PREPARED RECIPES USING OILS

1. Name of the investigator :
2. Name of the interviewee :
3. Name and address of the homemaker of the family :
  - a) Door No. : \_\_\_\_\_
  - b) Address : \_\_\_\_\_
4. Type of the family :  
 Joint                       Nuclear
5. Details regarding composition of the family :

S. No.	Name of the member	Relation to the head	Marital status	Age (Years)	Education	Occupation	Income per month (Rs.)

6. Monthly expenditure pattern

S.No.	Items	Rupees Spent	Per cent of Income
1	Food		
2	Clothing		
3	Shelter		
4	Education		
5	Transport		
6	Fuel and light		
7	Recreation		
8	Medicine		
9	Savings		
10	Any others		

7. Food Expenditure pattern

S. No.	Foods	Quantity purchased / obtained	Total cost	Frequency of purchase	% of food expenditure
1	Cereals				
2	Pulses				
3	Roots and Tubers				
4	Green leafy vegetables				
5	Other vegetables				
6	Fruits				
7	Nuts and oils				
8	Fleshy foods				
9	Milk and milk products				
10	Sugar and Jaggery				
11	Prepared foods				

**Meal planning**

8. Is planning done, in advance ?

Yes	No	Reasons

If yes, what is the basis for planning ?

Family requirement  Availability of food money

Likes and dislikes  Any other

9. Daily meal pattern

Days	Breakfast	Lunch	Tea	Dinner
First				
Second				
Third				

10. Methods of cooking

Food items	Boiling	Steaming	Frying		Stewing (or) Roasting	Others
			Shallow	Deep		
Cereals						
Pulses						
GLV						
Vegetables						
Eggs						
Nuts and oil seeds						
Milk and Milk products						
Fleshy foods						

11. Mention the name of fats and oils used in cooking.

S.No	Fats and Oils	Quantity (kg)	Frequency			
			Daily	Weekly	Once in fortnight	Monthly
1	Butter/ghee					
2	Gingelly oil					
3	Groundnut oil					
4	Sunflower oil					
5	Palm oil					
6	Rice bran oil					
7	Any other					

12. Identification of commonly prepared recipes

S.No	Commonly prepared recipes	Frequency of preparation	Types of oil used
1	Cereal based recipes		
2	Pulses based recipes		
3	Vegetable based recipes		
4	Egg based recipes		
5	Nuts and oil seeds		
6	Any other		

13. List the commonly prepared fried items (sweets)

S.No.	Commonly prepared sweet items	Frequency	Types of oils used	Frying	
				Shallow	Deep fat

14. List the name of fried (savory) items

S.No.	Commonly prepared savory items	Frequency	Types of oils used	Frying	
				Shallow	Deep fat
1					
2					
3					
4					
5					
6					
7					

## APPENDIX II

### AN INTERVIEW SCHEDULE TO ELICIT INFORMATION ON IDENTIFICATION OF COMMONLY PREPARED RECIPES IN DIFFERENT EATING OUTLETS

Name of the interviewer :

Name of the interviewee with the qualification and experience

Name of the shop :

Address :

1. What are the food items prepared in your eating outlet ?

- |    |    |    |     |     |
|----|----|----|-----|-----|
| 1. | 4. | 7  | 10. | 13. |
| 2. | 5. | 8. | 11. | 14. |
| 3. | 6. | 9. | 12. | 15. |

2. Name the ingredients and oil used in these preparations.

Name of the food	Ingredients	Amount (g)	Cost (Rs.)

3. Mention the type of foods that move fast.

Name : \_\_\_\_\_

Reason : \_\_\_\_\_

4. Give the commonly used fats and oils in the preparation.

5. Give the reasons for using the particular oil in your preparation.

S.No.	Food Preparations	Types of oil used	Quantity of oil purchased	Reasons for using the particular oil

6. List the types of cooking methods used in the preparation of food items.

S.No.	Food Items	Types of cooking methods

7. Identification of sweets and savouries

Name of the sweets / savouries	Types of oils used	Cost (Rs./kg)

8. Types of frying used in preparations

S.No	Name of sweets	Frying		Name of savouris	Frying	
		Deep fat	Shallow fat		Deep fat	Shallow fat

9. List the baked items move fast in your outlet ?

### APPENDIX III

#### AN INTERVIEW SCHEDULE FOR MAPPING OF GIRLS FOR SUPPLEMENTATION STUDIES

##### I. Socio-economic background of the selected girls

1. Name of the girl :
2. Class studying and age of girl :
3. Name and address of the head of the family :
4. Composition of the family :
5. Type of the family : Joint  Nuclear
6. Family background :

S. No.	Name of the member	Age (Years)	Marital status	Education	Occupation	Monthly Family Income (Rs)	Physical Activity

7. Dietary pattern
  - a) Type of food consumed
  - b) Monthly expenditure pattern

S.No.	Items	Rupees spent	Percent of income
1	Food		
2	Clothing		
3	Shelter		
4	Education		
5	Transport		
6	Fuel and light		
7	Recreation		
8	Medicines		
9	Savings		
10	Any other		

8. Meal planning

Is planning done, in advance ?

Yes	No	Reasons

If yes, what is the basis for planning ?

Family Requirement  Availability of food / money   
 Likes / Disklikes  Any others

9. Daily meal pattern

Days	Breakfast	Lunch	Tea	Dinner
First				
Second				
Third				

10. Does the girl skip any meals Yes  No

If yes, Breakfast  Lunch  Dinner

11. Mention the consumption of  $\beta$ -carotene/vitamin A rich foods.

Name of he foods	Quantity (g)	Frequency of consumption

12. Mention the types of beverages consumed.

13. Mention the fast foods consumed frequently

14. Anthropometric measurement of the girls

Height of the girls - \_\_\_\_\_ cm  
 Weight of the girls - \_\_\_\_\_ kg  
 Level of haemoglobin - \_\_\_\_\_ g/dl

## II Health status of the selected girls

1. Age at time of puberty of the girls
2. Special foods given during their puberty

- |    |    |     |
|----|----|-----|
| 1. | 5. | 9.  |
| 2. | 6. | 10. |
| 3. | 7. |     |
| 4. | 8. |     |

3. Menstrual problems faced by the selected girls

- |    |    |    |
|----|----|----|
| 1. | 4. | 7. |
| 2. | 5. | 8. |
| 3. | 6. |    |

4. Treatment taken for their menstrual problems.
5. Morbidity pattern

Have you suffered from any of the following health problems during the past six months ?

Health problems	Frequency			Duration (days)
	Constantly	Frequently	Occasionally	
Cough and cold				
Fever				
Diarrhoea / dysentery				
Vomiting				
Constipation				
Worm infestation				
Anorexia				
Any other				

6. Do you have any of the following infectious diseases ?

Illness	Duration of illness (days)
Measles	
Mumps	
Malaria	
Viral infection	
Jaundice	
Tuberculosis	
Whooping cough	
Polio myelitis	

7. Effect of supplementation on nutritional status of the selected target groups (before and after)

S.No	Parameters	Before	After
i	Height of the girls (cm)		
ii	Weight of the girls (kg)		
	<b>Biochemical estimation</b>		
I	Blood haemoglobin (g/dl)		
ii	Serum retinol (mcg/dl)		
iii	Serum total protein (g/dl)		
iv	Serum albumin (g/dl)		
v	Serum globulin (g/dl)		

**APPENDIX IV**  
**FAMILY AND INDIVIDUAL CONSUMPTION SURVEY WEIGHMENT**  
**METHOD**

Name of the investigator : Door No. :

Name of the head of the family : Address :

Name of the subject :

Age of the subject : Date :

**FOOD CONSUMPTION**

<b>Name of the meal</b>	<b>Menu</b>	<b>Weight of the total raw ingredients used by the family (g)</b>	<b>Weight of the total cooked food consumed by the family (g)</b>	<b>Amount of cooked food consumed by the individual (g)</b>	<b>Raw equivalents consumed by the individual (g)</b>
Breakfast					
Lunch					
Tea					
Dinner					

**APPENDIX V**  
**SCHEDULE FOR CLINICAL ASSESSMENT**

(Tick wherever relevant)

- I. Healthy and free any deficiency symptoms
  
- II.
  - a) Poor musculature
  - b) Deficient subcutaneous fat
  - c) Mild anaemia
  - d) Lack of interest in surrounding
  - e) Mild signs of not more than one of the specific nutritional Disorders or deficiencies mentioned under (3) of III
  
- III.
  - (1)
    - a) Nutritional oedema
    - b) Gross muscular wasting
    - c) Marked anaemia
    - d) Xerosis of the cornea
  
  - (2)
    - a) tenderness of the calf
    - b) Red and/or Raw/Glazed tongue
    - c) Angular stomatitis
    - d) Bleeding gums
    - e) Conjunctival xerosis
  
  - (3)
    - a) Xerosis or pigmentation of conjunctiva
    - b) Bitot's spots
    - c) Caries
    - d) Dry/or rough skin
    - e) Crazy pavement skin
    - f) Hyperkeratosis

**Special Remarks :**

## COLLECTION OF DATA FROM THE SELECTED TARGET GROUPS

### HEIGHT AND WEIGHT OF THE GIRLS (4 - 6 YEARS)

S.NO.	HEIGHT (cm)				WEIGHT (kg)			
	Expt.		Control		Expt.		Control	
	I	F	I	F	I	F	I	F
1	100.6	103.6	112.1	111.9	16.2	17.1	13.36	14.10
2	114.9	118.6	111.9	111.7	16.7	17.6	18.62	18.73
3	107.4	109.9	112.3	112.2	15.0	16.1	15.38	15.51
4	109.2	111.4	110.0	109.4	13.5	14.4	15.52	15.73
5	112.0	114.7	109.1	108.4	13.8	14.7	15.22	15.52
6	111.1	113.5	108.6	107.7	16.0	16.9	16.42	16.94
7	113.6	115.6	113.3	113.2	14.9	15.7	19.03	19.39
8	105.3	107.4	115.2	115.0	16.3	17.2	17.73	17.69
9	105.3	107.5	116.6	116.2	16.8	17.7	15.88	16.29
10	110.0	112.4	113.4	113.2	15.3	16.4	14.08	14.49
11	109.2	112.7	112.3	111.9	16.5	17.5	15.03	15.49
12	109.9	112.3	112.9	112.5	17.1	18.0	15.13	15.59
13	104.7	112.3	111.9	111.7	13.2	14.4	17.23	17.99
14	113.5	107.1	112.4	112.2	14.0	14.9	18.03	18.09
15	111.1	115.4	110.2	109.6	13.3	14.4	16.08	18.79
16	115.2	113.4	108.9	108.5	14.7	15.6	17.18	17.99
17	113.4	117.4	109.8	109.7	16.3	17.0	12.73	15.39
18	112.6	115.6	110.1	109.2	12.5	13.2	14.23	15.59
19	113.9	115.1	112.7	112.4	13.9	14.9	17.93	18.19
20	113.4	116.2	119.9	119.7	18.2	19.2	18.28	18.99

### (7 - 9 YEARS)

S.NO.	HEIGHT (cm)				WEIGHT (kg)			
	Expt.		Control		Expt.		Control	
	I	F	I	F	I	F	I	F
1	121.7	123.9	118.7	119.7	20.9	22.2	21.8	22.6
2	122.2	124.1	119.8	120.9	21.4	22.4	22.5	23.4
3	120.9	123.6	121.5	121.9	21.1	22.2	22.3	23.3
4	122.9	125.1	121.7	122.9	19.6	21.9	22.6	23.2
5	126.1	124.1	122.9	123.7	22.2	23.5	23.3	24.3
6	121.3	123.6	123.7	121.9	19.2	20.8	21.0	21.6
7	120.4	121.3	121.9	122.6	18.7	19.9	21.1	21.8
8	121.8	123.8	122.6	123.2	21.9	23.0	21.9	22.5
9	121.4	123.9	123.2	120.2	21.5	22.2	22.6	23.4
10	122.3	124.1	120.2	121.2	21.1	22.3	22.3	23.3
11	121.9	123.9	121.2	122.2	19.7	20.8	21.1	21.8
12	121.6	122.6	121.7	122.7	21.9	23.0	21.9	22.6
13	122.4	124.1	122.0	122.9	22.1	23.2	21.9	22.6
14	119.9	122.0	119.4	120.9	19.6	20.8	22.5	23.4
15	123.0	124.0	119.4	121.2	19.5	21.2	22.9	23.4
16	121.7	122.6	120.0	120.9	18.7	19.9	21.0	21.8
17	118.9	120.9	121.5	122.9	21.2	22.2	22.0	22.6
18	121.9	123.9	121.7	122.7	19.2	21.0	23.0	23.7
19	121.7	123.5	120.1	121.4	18.7	20.2	20.8	21.6
20	122.4	124.3	119.5	120.1	21.9	23.0	20.7	21.6

(10 - 12 YEARS)

S.NO.	HEIGHT (cm)				WEIGHT (kg)			
	Expt.		Control		Expt.		Control	
	I	F	I	F	I	F	I	F
1	137.7	139.9	144.8	145.5	35.6	37.8	35.1	36.1
2	136.6	139.2	140.4	141.3	35.2	37.3	35.6	36.5
3	138.5	140.7	141.1	142.9	35.3	37.1	35.6	36.6
4	137.8	140.4	141.8	143.0	35.6	37.8	35.4	36.3
5	138.6	141.2	145.1	145.8	37.3	39.2	35.9	36.6
6	138.5	141.1	146.0	146.9	34.6	36.7	34.3	35.0
7	137.2	139.2	143.1	143.7	34.1	36.3	35.8	36.5
8	132.8	136.6	141.4	142.4	35.6	37.7	32.2	33.0
9	136.5	139.9	145.8	146.5	32.6	34.8	35.3	36.3
10	136.2	138.1	140.6	141.3	35.1	37.2	35.4	36.4
11	135.0	136.9	141.8	143.3	33.8	35.6	33.8	34.6
12	135.1	137.0	142.3	142.9	31.8	33.8	35.6	36.5
13	137.2	139.2	144.8	145.5	31.2	33.4	36.2	37.1
14	136.7	138.7	136.2	137.4	32.6	34.4	36.9	38.0
15	132.2	134.6	137.3	137.3	36.8	38.8	31.9	32.6
16	136.6	139.1	145.1	145.8	34.7	36.9	37.6	38.5
17	135.3	137.6	139.3	140.5	34.3	35.9	35.6	37.1
18	134.3	136.9	145.8	146.0	32.3	34.7	31.9	32.6
19	136.2	138.5	141.6	142.3	34.2	35.9	34.4	35.5
20	136.5	138.9	142.8	143.3	35.3	37.0	33.6	34.6

(13 - 15 YEARS)

S.NO.	HEIGHT (cm)				WEIGHT (kg)			
	Expt.		Control		Expt.		Control	
	I	F	I	F	I	F	I	F
1	155.5	156.1	152.4	152.6	44.4	45.9	48.4	49.0
2	154.2	154.6	150.1	150.3	45.7	47.1	48.0	48.5
3	156.7	157.1	145.8	146.2	44.2	45.6	45.9	46.6
4	157.6	158.1	144.7	144.9	41.8	42.9	49.4	50.1
5	155.9	156.3	146.1	146.4	45.4	47.0	44.0	44.7
6	156.5	157.0	149.7	150.1	46.5	48.0	44.7	45.2
7	154.6	155.3	147.2	147.4	47.3	48.3	46.0	46.5
8	155.7	155.9	146.9	146.9	46.2	47.2	46.6	47.0
9	152.0	152.1	148.8	148.8	41.6	42.5	49.7	50.5
10	152.4	152.6	144.4	144.7	43.9	44.7	49.1	49.7
11	156.7	156.9	152.4	153.4	45.4	46.2	49.5	50.2
12	157.4	157.7	153.2	153.6	46.5	47.3	50.4	51.2
13	155.8	155.9	155.4	155.6	45.3	46.3	49.6	50.2
14	155.4	155.7	157.3	157.7	41.8	42.7	43.0	43.6
15	156.7	157.0	156.2	156.5	46.4	47.7	47.6	48.2
16	154.2	154.6	153.2	153.5	45.4	46.5	49.1	49.7
17	156.7	157.0	152.7	152.6	41.5	42.4	48.2	48.8
18	155.1	155.5	155.2	155.2	41.4	42.4	49.7	50.3
19	156.2	156.6	154.4	155.3	42.5	43.5	46.2	46.9
20	155.9	156.1	153.7	152.7	42.1	43.2	46.2	46.9

(16 – 18 YEARS)

S.NO.	HEIGHT (cm)				WEIGHT (kg)			
	Expt.		Control		Expt.		Control	
	I	F	I	F	I	F	I	F
1	157.3	158.8	156.7	158.1	50.77	52.1	51.10	51.5
2	155.8	157.9	156.2	157.5	48.6	50.3	49.3	50.6
3	156.7	159.0	158.1	160.4	49.5	50.9	51.1	51.80
4	152.8	154.8	156.1	157.3	51.5	53.4	52.1	52.9
5	156.7	158.1	154.7	156.9	52.6	54.1	53.3	54.9
6	158.7	160.0	156.4	157.8	49.9	52.2	46.0	46.8
7	159.2	161.5	155.4	156.2	54.8	56.2	48.2	48.9
8	157.3	159.0	158.1	159.9	48.8	50.1	49.7	50.6
9	157.8	159.5	156.1	156.9	49.9	51.4	51.3	51.9
10	155.7	157.1	160.0	161.2	52.1	53.1	51.8	52.4
11	156.0	158.1	154.1	155.6	50.6	51.3	53.0	53.9
12	159.3	161.6	155.7	156.9	49.7	51.2	46.3	46.9
13	155.2	157.3	156.3	157.4	48.6	49.8	52.1	52.5
14	154.3	156.5	152.1	153.7	49.7	51.3	49.8	50.6
15	157.0	158.9	155.1	155.4	44.7	45.4	48.4	48.9
16	153.5	155.6	156.7	158.1	50.4	51.7	47.2	47.9
17	155.2	157.3	153.8	154.9	54.4	55.3	49.1	49.8
18	157.8	158.9	149.8	151.1	52.2	53.1	51.0	51.7
19	153.0	154.4	156.4	157.8	53.1	54.1	49.9	50.6
20	159.0	160.6	154.6	155.8	51.2	52.4	50.1	50.8

SERUM TOTAL PROTEIN, ALBUMIN AND GLOBULIN LEVEL  
(4 - 6 YEARS)

S.NO.	TOTAL PROTEIN (g/dl)				ALBUMIN (g/dl)				GLOBULIN (g/dl)			
	Expt.		Control		Expt.		Control		Expt.		Control	
	I	F	I	F	I	F	I	F	I	F	I	F
1.	6.04	7.9	4.92	7.12	2.81	3.63	2.84	3.17	3.23	4.27	2.08	3.95
2.	6.66	8.6	4.84	6.14	2.93	3.92	2.92	3.25	3.73	4.68	1.92	2.89
3.	5.05	6.9	6.16	7.14	3.1	3.94	2.94	3.27	1.95	2.96	3.22	3.87
4.	5.29	5.8	6.74	7.09	2.86	3.64	3.15	3.50	2.43	2.16	3.59	3.59
5.	5.98	7.7	6.52	6.96	2.64	3.72	3.46	3.72	3.34	3.98	3.06	3.24
6.	6.02	6.9	5.94	6.98	2.72	3.91	3.41	3.76	3.30	2.99	2.53	3.22
7.	6.14	6.8	5.67	6.97	2.81	3.94	3.24	3.61	3.33	2.86	2.43	3.36
8.	5.22	6.9	6.92	7.12	2.93	3.74	3.17	3.36	2.29	3.16	3.75	3.76
9.	5.69	7.4	6.72	7.41	3.01	4.12	3.42	3.84	2.68	3.28	3.30	3.57
10.	6.02	7.4	5.92	6.62	3.11	3.94	3.52	3.51	2.91	3.46	2.40	3.11
11.	6.04	7.7	7.10	7.42	2.94	3.82	3.63	4.22	3.10	3.88	3.47	3.20
12.	6.10	7.6	5.64	5.80	2.53	3.41	3.18	3.51	3.57	4.19	2.46	2.29
13.	5.28	6.4	5.14	5.30	3.01	3.81	3.42	3.75	2.27	2.59	1.72	1.55
14.	6.46	7.9	5.41	5.57	3.02	3.80	3.73	3.92	3.44	4.10	1.68	1.65
15.	6.11	6.7	5.74	5.9	2.96	3.74	3.81	3.14	3.15	2.96	1.93	2.76
16.	5.30	6.8	5.86	6.02	2.83	3.64	2.94	3.23	2.34	3.16	3.52	2.79
17.	6.05	7.4	6.12	6.28	2.92	3.71	3.12	3.45	3.13	3.69	4.00	2.83
18.	6.13	7.8	6.31	6.47	3.12	3.92	3.71	3.49	3.01	3.88	2.60	2.98
19.	6.06	7.9	6.47	6.61	3.02	3.91	3.43	3.75	3.04	3.99	3.04	2.86
20.	5.96	6.8	6.84	7.01	2.79	3.86	3.52	3.82	3.17	2.94	3.32	3.17

(7 - 9 YEARS)

S.NO.	TOTAL PROTEIN (g/dl)				ALBUMIN (g/dl)				GLOBULIN (g/dl)			
	Expt.		Control		Expt.		Control		Expt.		Control	
	I	F	I	F	I	F	I	F	I	F	I	F
1.	5.74	7.36	5.10	5.69	2.84	4.12	3.21	3.69	2.90	3.24	1.89	2.00
2	5.81	7.18	4.96	5.84	2.64	4.60	2.04	2.72	3.17	2.58	2.92	3.12
3	5.50	7.05	5.07	5.27	2.38	4.12	3.14	3.33	3.12	2.93	1.93	1.94
4	5.52	7.37	5.76	5.78	2.81	4.31	2.44	2.74	2.71	3.06	3.32	3.04
5	5.63	8.10	5.88	5.87	2.43	4.52	2.63	2.82	3.20	3.58	3.25	3.05
6	5.53	7.03	4.98	5.98	2.76	4.14	2.54	2.94	2.77	2.89	2.44	3.04
7	5.58	7.36	5.26	5.55	2.41	3.92	2.66	2.63	3.17	3.44	2.60	2.92
8	5.81	7.20	5.88	5.27	2.32	3.72	2.54	2.82	3.49	3.48	3.34	3.45
9	5.77	7.08	5.79	5.82	2.41	3.18	2.63	2.56	3.36	3.90	3.16	3.26
10	5.41	7.39	5.66	5.97	2.63	3.72	2.54	2.82	2.78	3.67	3.12	3.15
11	5.50	7.43	5.78	5.88	2.31	3.67	2.46	2.54	3.19	3.76	3.32	3.34
12	5.47	7.36	5.56	5.86	2.54	3.48	2.54	2.55	2.93	3.88	3.02	3.31
13	5.66	7.23	5.53	5.53	2.72	3.84	2.39	2.34	2.94	3.39	3.14	3.19
14	5.71	7.08	5.86	6.15	2.64	3.68	2.84	2.96	3.07	3.4	3.02	3.19
15	5.41	7.99	5.10	5.70	2.36	3.42	2.66	2.99	3.05	3.57	2.44	2.71
16	5.73	7.45	4.98	5.02	2.57	3.12	2.94	2.98	3.16	4.33	2.04	2.04
17	5.81	7.59	5.10	5.03	2.49	3.94	2.86	3.01	3.32	3.65	2.24	2.02
18	5.40	7.18	5.76	5.76	2.54	3.82	2.89	3.04	2.86	3.36	2.87	2.72
19	5.51	7.25	5.85	5.83	2.53	3.65	2.87	3.12	2.98	3.60	2.98	2.71
20	5.41	7.18	5.78	5.77	2.51	3.37	2.69	2.62	2.90	3.81	3.09	3.15

(13 - 15 YEARS)

S.NO.	TOTAL PROTEIN (g/dl)				ALBUMIN (g/dl)				GLOBULIN (g/dl)			
	Expt.		Control		Expt.		Control		Expt.		Control	
	I	F	I	F	I	F	I	F	I	F	I	F
1.	4.62	6.41	5.26	6.14	2.4	3.2	2.8	3.8	2.22	3.21	2.46	2.34
2	4.96	6.75	4.97	5.12	2.7	4.9	2.6	3.1	2.26	1.85	2.37	2.02
3	4.84	6.67	4.84	5.93	3.3	4.8	3.4	3.9	1.54	1.87	1.44	2.03
4	4.72	6.51	4.92	5.72	2.8	4.4	3.1	3.7	1.92	2.11	1.82	2.02
5	4.68	6.72	5.12	6.21	2.4	4.3	3.2	3.8	2.28	2.42	1.92	2.41
6	4.94	6.42	5.24	6.31	2.6	3.8	2.9	3.3	2.34	2.62	2.34	3.01
7	4.96	7.67	5.31	5.52	2.8	5.2	2.6	3.1	2.16	2.47	2.71	2.42
8	4.94	6.98	5.21	6.12	3.4	5.6	2.8	3.2	1.54	1.38	2.41	2.92
9	4.86	7.59	5.01	6.11	2.1	4.4	3.1	3.6	2.76	3.16	1.97	2.51
10	4.92	6.72	5.14	6.01	3.1	3.9	3.4	3.9	1.82	2.82	1.74	2.11
11	4.96	6.83	5.14	6.11	2.4	4.2	3.4	3.8	2.56	2.63	1.74	2.31
12	4.94	7.53	5.42	6.07	2.3	5.8	2.9	3.1	2.64	1.73	2.52	2.97
13	4.9	7.72	4.84	5.76	2.9	5.3	2.7	3.2	2.0	2.42	2.14	2.56
14	4.82	7.73	4.34	5.26	2.9	4.9	3.3	3.8	1.92	2.83	1.04	1.46
15	4.94	6.66	4.56	5.63	3.0	3.6	3.2	3.8	1.94	3.06	1.36	1.83
16	4.87	6.72	3.94	4.82	2.1	4.3	3.1	3.7	2.77	2.42	0.84	1.12
17	5.21	7.82	4.96	5.94	2.7	4.9	3.6	3.9	2.51	2.92	1.36	2.04
18	5.30	7.92	5.14	6.23	2.4	5.6	2.8	3.1	2.90	2.32	2.34	3.13
19	5.26	6.87	5.24	6.18	2.6	3.4	2.9	3.3	2.66	3.47	2.34	2.88
20	4.97	6.94	4.96	6.72	2.6	4.4	2.8	4.2	2.37	2.54	2.16	2.52

(16 - 18 YEARS)

S.NO.	TOTAL PROTEIN (g/dl)				ALBUMIN (g/dl)				GLOBULIN (g/dl)			
	Expt.		Control		Expt.		Control		Expt.		Control	
	I	F	I	F	I	F	I	F	I	F	I	F
1.	4.12	7.54	5.03	6.48	2.86	5.56	2.9	3.6	1.26	1.98	2.13	2.88
2	4.73	6.99	5.34	6.68	3.14	5.51	3.7	3.9	1.59	1.48	1.64	2.78
3	4.54	7.93	5.55	6.69	3.02	5.62	2.4	3.0	1.52	2.31	3.15	3.69
4	3.92	7.14	4.28	5.48	2.13	5.38	2.7	3.4	1.79	1.76	1.58	2.08
5	4.82	7.33	4.11	5.52	3.11	5.62	2.9	3.5	1.71	1.71	1.21	2.02
6	4.73	6.42	5.53	6.77	2.91	4.67	3.6	4.2	1.82	1.75	1.93	2.57
7	4.61	8.13	5.32	5.54	2.84	5.83	2.9	3.6	1.77	2.30	2.42	1.92
8	4.12	7.82	5.49	6.55	2.72	5.67	2.8	3.2	1.4	2.15	2.69	3.25
9	4.42	7.14	5.41	6.59	2.68	5.13	3.7	4.6	1.74	2.01	1.71	1.99
10	4.71	7.62	5.44	6.53	2.91	5.12	3.9	4.5	1.80	2.50	1.54	2.03
11	4.35	7.12	5.42	6.54	2.82	5.62	3.6	4.2	1.53	1.50	1.82	2.34
12	4.72	8.01	4.34	5.37	2.92	5.44	2.7	4.3	1.80	2.57	1.64	2.07
13	4.47	7.72	4.17	5.31	2.76	5.72	2.8	3.5	1.31	2.00	1.37	1.81
14	3.96	6.84	4.67	5.78	2.67	5.18	2.9	3.5	1.29	1.66	1.77	2.28
15	4.55	7.92	5.05	6.19	2.72	5.32	3.3	3.6	1.83	2.60	1.75	2.59
16	4.91	7.63	5.42	6.54	2.81	5.31	3.7	3.8	2.1	2.32	1.72	2.74
17	4.82	7.69	4.98	6.12	2.96	5.76	3.3	3.9	1.86	1.93	1.68	2.22
18	4.87	7.91	5.02	6.14	2.94	5.81	3.4	3.8	1.93	2.1	1.62	2.34
19	4.12	7.71	5.23	6.48	2.83	4.59	3.5	3.9	1.37	3.12	1.73	3.28
20	4.79	6.89	5.21	5.77	2.96	4.28	3.3	3.8	1.8	2.61	1.91	1.97

SERUM RETINOL OF THE SELECTED GIRLS  
SERUM RETINOL LEVEL (g/dl)

S.NO	4 - 6 YEARS				7 - 9 YEARS			
	Expt.		Control		Expt.		Control	
	I	F	I	F	I	F	I	F
1	21.42	49.64	23.4	28.4	27.15	59.41	26.73	41.72
2	20.68	51.13	23.1	27.93	31.4	49.75	32.86	45.34
3	23.12	49.91	23.45	28.41	26.4	61.51	33.15	46.14
4	20.51	38.14	23.91	30.52	25.6	54.13	29.63	39.72
5	19.68	49.4	27.12	30.14	29.6	53.15	32.15	43.45
6	20.70	52.6	20.31	26.17	28.4	49.84	36.10	45.34
7	22.14	57.10	20.42	29.71	29.7	56.42	20.75	39.84
8	15.14	59.42	26.12	30.40	30.1	54.35	33.4	39.73
9	23.21	63.71	28.17	29.75	28.6	56.15	28.31	38.45
10	26.10	57.10	21.14	30.34	29.7	49.84	29.75	45.54
11	23.01	54.32	19.75	31.75	34.7	56.84	27.14	46.32
12	23.71	55.31	20.63	30.74	26.7	57.50	33.41	44.75
13	19.74	56.77	24.31	32.00	26.3	54.82	29.91	43.54
14	22.61	49.93	25.81	27.52	28.8	56.14	26.53	43.62
15	21.43	48.14	24.15	25.93	24.6	56.64	30.75	45.72
16	24.45	53.61	19.9	26.75	26.9	61.15	31.43	46.33
17	21.39	54.14	25.5	28.15	36.4	53.82	32.84	42.75
18	23.41	56.54	23.7	29.72	33.6	53.75	29.14	44.16
19	24.31	50.73	19.8	25.18	34.1	59.15	31.14	44.72
20	20.07	54.13	27.85	27.85	28.4	56.72	33.32	43.12

**SERUM RETINOL LEVEL (g/dl)**

S.NO.	10 – 12 YEARS				13 – 15 YEARS			
	Expt.		Control		Expt.		Control	
	I	F	I	F	I	F	I	F
1	20.14	44.7	21.74	27.41	24.7	49.4	24.15	27.15
2	23.41	43.54	23.15	27.7	20.6	53.4	26.15	28.14
3	20.72	37.34	24.12	27.1	27.4	54.1	24.71	26.15
4	19.84	39.14	23.10	29.1	24.1	42.3	20.4	21.51
5	20.75	41.71	20.5	24.7	20.1	43.4	23.31	23.5
6	21.36	29.85	20.7	29.12	21.4	48.3	24.12	25.72
7	21.54	38.14	23.4	30.14	21.6	46.4	24.72	26.12
8	24.21	39.15	23.4	29.41	21.7	47.3	23.11	26.41
9	23.42	43.52	24.1	24.10	26.3	48.3	20.14	22.71
10	24.17	45.32	27.15	31.10	25.5	46.4	20.72	23.4
11	25.18	36.47	19.18	23.15	26.3	46.8	21.75	23.75
12	19.75	38.75	20.1	26.69	22.4	45.3	20.42	24.12
13	21.71	36.14	20.6	22.15	25.4	46.7	23.75	26.74
14	26.75	35.84	21.7	24.17	23.4	46.6	23.45	26.15
15	22.45	36.11	23.4	28.14	26.7	48.7	20.61	23.71
16	24.35	37.13	24.2	29.41	22.3	43.6	24.32	26.41
17	20.42	38.15	23.4	28.87	21.7	44.8	25.15	27.18
18	24.17	39.14	22.7	30.4	23.8	42.6	27.12	30.13
19	34.51	39.71	23.4	28.6	25.1	43.4	20.18	26.7
20	19.72	38.42	25.6	30.4	23.4	45.4	20.91	23.4

16 – 18 YEARS			
Expt.		Control	
I	F	I	F
36.1	64.15	31.15	30.62
39.14	63.72	28.14	31.15
26.71	56.84	26.73	24.15
28.41	57.18	25.42	26.72
29.72	61.15	29.72	28.72
36.41	60.72	32.14	36.41
37.12	59.42	34.20	38.41
36.74	62.14	30.15	32.32
29.9	60.45	29.72	34.14
33.34	61.71	28.72	33.71
34.12	60.18	29.64	36.32
36.12	61.15	30.72	35.15
38.74	59.72	31.00	36.72
39.91	56.84	26.42	29.92
42.14	60.00	28.75	34.12
36.14	63.14	26.41	30.15
35.33	65.14	27.81	31.26
29.41	60.72	29.14	31.72
34.21	61.12	30.15	32.72
28.12	66.0	30.23	34.71