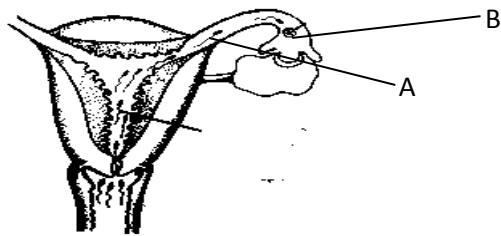




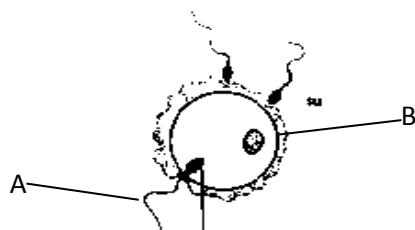
SCIENCE AND TECHNOLOGY PART 2

UNIT 9: REPRODUCTION IN HUMAN BEINGS

1. Meaning of the term “fertilisation” (conception)
 - It is the union of a male and female gametes to form a zygote
2. **Figure 1** shows how conception occurs



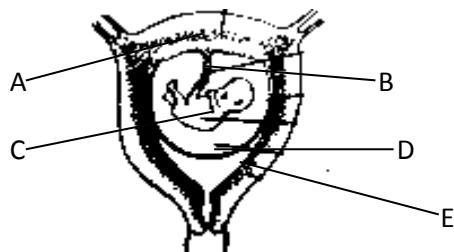
- i. Name the part labeled A and B
 - A. Sperm
 - B. Ovum (an egg)
 - ii. What happens when A and B meets
 - Fertilisation takes place
 - iii. Name the part in which process mentioned in 2.ii takes place
 - Fallopian tube (oviduct)
3. **Figure 2** is a diagram of which shows a sperm and an ovum



- i. Name the part labeled A and B
 - A. A sperm
 - B. An egg (ovum)
 - ii. Describe the process taking place in part labeled C
 - The sperm unites with an egg resulting into fertilisation
4. Signs and symptoms of pregnancy

- i. Menstruation stops to occur
- ii. Enlargement of breast and abdomen
- iii. Morning sickness
- iv. Feeling dizziness
- v. Vomiting
- vi. Changing moods
- vii. Being choosy about food
- viii. Craving for unusual food and other substances (soil and other sour things)

5. **Figure 3** shows the growth and development of a baby in the uterus



- i. Name the parts labeled **A**, **B**, **C**, **D** and **E**
 - A. Placenta
 - B. Umbilical cord
 - C. Foetus
 - D. Amnion fluid
 - E. Uterus
- ii. Function of the part labeled **A**, **B** and **D**
 - A. Placenta
 - It allows food substances and oxygen to diffuse from the mother to the child
 - It allows urea and carbon dioxide to diffuse from the embryo to the mother
 - It allows antibodies to diffuse from the mother to the embryo
 - B. Umbilical cord
 - It helps the embryo to be attached to the placenta
 - It helps substances to move from the mother to the embryo
 - C. Amnion fluid
 - It protects the embryo from external forces
 - It allows the embryo to move freely during birth
- iii. How does **C** gets food from the mother

- It gets from the placenta through the umbilical cord
- iv. Four substances that pass through part B
- i. Oxygen
 - ii. Food substances
 - iii. Urea
 - iv. Carbon dioxide
6. The needs of a pregnant woman and unborn baby
- i. Dietary needs
 - ii. Health needs
 - iii. Psychological needs
 - iv. Physiological needs

7. **Table 1** below shows needs of a pregnant woman and their examples

Needs of a pregnant woman	Examples
Dietary needs	<ul style="list-style-type: none"> • Balanced diet (proteins, calcium, phosphorous, iron, vitamins) • Plenty of clean and safe drinking water
Health needs	<ul style="list-style-type: none"> • Undergoing regular medical check-ups at antenatal clinics • Taking regular baths and wearing clean clothes • No smoking or taking drugs without prescriptions by a medical doctor
Psychological needs	<ul style="list-style-type: none"> • Love • Care • Understanding from all people around her
Physiological needs	<ul style="list-style-type: none"> • Proper attire (loose clothes and flat shoes) • Regular moderate physical exercises • Rest

8. Ways of taking care of a baby
- i. Following good feeding habits
 - ii. Immunization against infection
 - iii. Regular baths and wearing clean clothes
 - iv. Adequate sleep
 - v. Provision of vitamin A and deworming tablets
9. Common diseases of children

- i. Whooping cough
- ii. Polio
- iii. Measles
- iv. Diarrhoea
- v. Malaria
- vi. TB
- vii. Tetanus

10. Effects of diseases in children

- i. They may lead to paralysis and deformity
- ii. They cause deafness
- iii. They cause anemia
- iv. They may cause Pneumonia
- v. They may result to death

11. Ways of preventing diseases in children

- i. Immunization
- ii. Sleeping under mosquito nets
- iii. Hygienity

12. Importance of under-five clinics

- i. They provide vitamin A
- ii. They monitor weight of children
- iii. They provide BCG,TB and DPT vaccines
- iv. They help to treat common infections

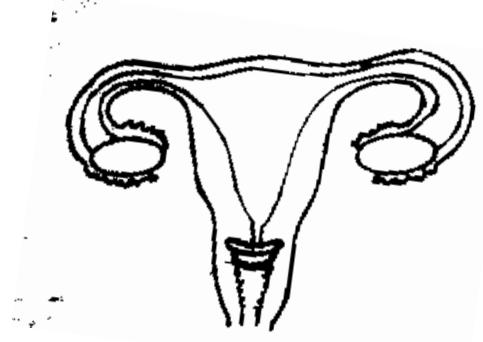
13. Importance of family planning

- i. They saves the lives of children
- ii. They improve well-being of families
- iii. They helps the nation to develop
- iv. They reduce unplanned pregnancies

14. Examples of family planning methods

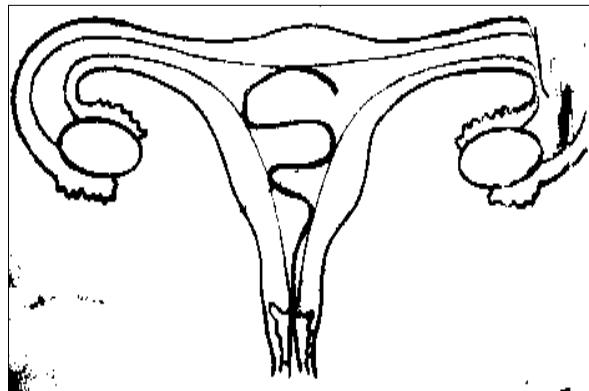
- i. Use of condoms
- ii. Intra-uterine device (IUD)
- iii. Tubal ligation (TL)
- iv. Norplant
- v. Vasectomy
- vi. Spermicides
- vii. The diaphragm
- viii. Use of contraceptive pills
- ix. Natural method

15. **Figure 4** shows family planning method



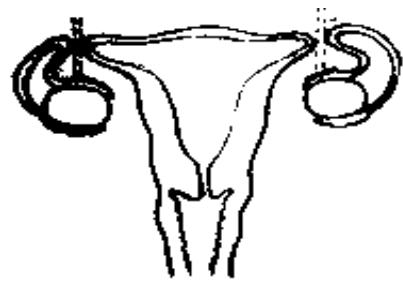
- a. Name the family planning method
 - The diaphragm
- b. Explain how the method is used to avoid pregnancy
 - The rubber disc is placed in the vagina before sexual intercourse which prevents the sperms from entering the uterus

16. **Figure 5** is a diagram of family planning method



- a. Name the family planning method
 - Intrauterine device (IUD)
- b. Mention the parts labeled A
 - Intrauterine strip (coil)
- c. Explain the method prevents conception
 - The coil is inserted in the uterus where it prevent implantation of the embryo

17. **Figure 6** shows a diagram of family planning method



- a. Name the family planning method
 - Tubal ligation (TL)
- b. Explain how it prevents conception
 - The oviduct is cut and prevent the sperm from reaching the egg (ovum)
- c. State the advantages of the method
 - i. It does not affect the ovaries
 - ii. It does not affect sexual desire or menstruation
- d. The side effect of the method
 - It cannot be reversed

18. **The table** shows family planning method and their side effects

Family planning method	How prevents conception	Side effects
Use of condoms	<ul style="list-style-type: none">• The condom is worn on erected penis before sexual intercourse which prevents sperms from entering the vagina	<ul style="list-style-type: none">• It can burst
Contraceptive pills	<ul style="list-style-type: none">• The pills suppress ovulation	<ul style="list-style-type: none">• They can lead to breast and cervical cancer
Vasectomy	<ul style="list-style-type: none">• The sperm duct is cut and the ending are tied	<ul style="list-style-type: none">• It is not always successful to rejoin the sperm duct
Spermicides	<ul style="list-style-type: none">• These are chemicals that kills the sperms after deposited in the vagina	<ul style="list-style-type: none">• They are not reliable
Norplant	<ul style="list-style-type: none">• A set of six small plastic capsules are placed under the skin of woman's upper arm which suppress ovulation	<ul style="list-style-type: none">• They may lead to changes in menstruation bleeding• They lead to dizziness• Enlargement of ovaries• Nausea• Skin rashes• Loss of appetite• Breast discharge and hair lost

EXERCISE 8

1. Define the term 'family planning method' _____

2. Why do people practice family planning method? Give three reasons
i. _____
ii. _____
iii. _____
3. Explain how pregnancy takes place _____

4. State three signs and symptom of pregnancy
i. _____
ii. _____
iii. _____
5. Why should the diet of a pregnant woman contain the following in sufficient quantities
a. Calcium and phosphorus? _____

b. Iron ? _____

6. Explain how an born baby:
a. Gets its food? _____

b. Get rid of carbon dioxide, urea and other waste products _____

7. State three ways how you can take care of a baby
i. _____
ii. _____
iii. _____
8. Name four diseases of children
i. _____
ii. _____
iii. _____
iv. _____

9. State four family planning method

- i. _____
- ii. _____
- iii. _____
- iv. _____

10. Explain how each of the methods you named in question 9 works

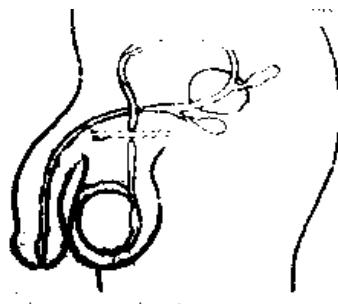
- i. _____

- ii. _____

- iii. _____

- iv. _____

11. **Figure 1** is diagram of family planning method. Use it to answer **Question 11**,



- a. Name the family planning method _____
- b. Explain how the method prevents conception _____

- c. Describe the side effect of the method _____

UNIT 10 : SOLUTION AND MIXTURES

1. Meaning of the term mixture
 - It is when two or more types of substances are put together
 2. Ways in which mixtures are formed
 - i. A solid with another solid (maize and beans)
 - ii. A solid and a liquid (sugar and water)
 - iii. A liquid and another liquid (petrol and water)
 - iv. A liquid and a gas (fizzy drinks)
 - v. A gas and another gas (air)
 3. **The table** below shows terms used in mixture and their meanings
- | Terms | Meanings |
|--------------|---|
| Solvent | It is a substance in which something dissolves |
| Solute | It is substance which dissolves in another substance |
| Dissolve | It is the spreading of particles throughout the water producing a clear solution |
| Soluble | It is a substance that dissolves in water |
| Insoluble | It is a substance that do not dissolve in water |
| Residues | These are substance that does not pass through a filter |
| Filtrate | These are substances that pass through a filter |
| Solutions | It is a mixture that appears as it were one substance |
| Suspensions | It is a mixture where by the components can easily be seen |
| Distillation | It is the separating of liquid mixture with components of different boiling point |
| Decanting | It is the separating liquid mixture by pouring off leaving another liquid behind |
4. Factors that affect the rate of solubility of substances in water
 - i. Size of particles
 - ii. Temperature
 - iii. Stirring
 - iv. Nature of substance
 5. Methods of separating mixture
 - i. Handpicking
 - ii. Winnowing
 - iii. Sieving
 - iv. Filtration
 - v. Decanting
 - vi. Evaporation
 - vii. Distillation
 - viii. Magnetism

6. The table below shows methods of separating mixtures and their examples

Method of separating mixture	Examples of mixture
Handpicking	Beans and sand, Maize and beans
Winnowing	Heavy rice seeds from lighter rice residues
Sieving	Tea leaves from tea
Decanting	Water and paraffin, water and cooking oil
Filtration	Water and sand
Evaporation	Salt and water
Distillation	Kachaso
Magnetism	Iron particles from sand

EXERCISE 9

1. Define the following terms

a. Solute _____

b. Solvent _____

c. Solution _____

2. What method would you use to separate the following mixtures

a. Salt and water _____

b. Water and paraffin _____

c. Sugar , flour and water _____

3. Why mixtures are useful in everyday life? Give three reasons

i. _____
ii. _____
iii. _____

4. Explain three factors that affect solubility of substances in water

i. _____

ii. _____

iii. _____

5. Give two examples of solvents

i. _____

ii. _____

6. Mention three examples of insoluble substances

i. _____

ii. _____

iii. _____

7. State four ways of forming mixtures

i. _____

ii. _____

iii. _____

iv. _____

8. Give two examples of each way mention in 7

i. _____

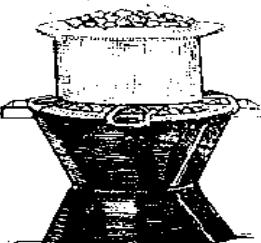
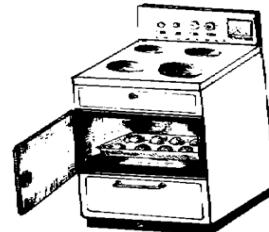
ii. _____

iii. _____

iv. _____

UNIT 11 : METHODS OF COOKING

1. Types of cooking method
 - i. Dry method
 - ii. Moist method
2. Examples of dry method of cooking
 - i. Frying
 - ii. Baking
 - iii. Roasting
3. Examples of moist method of cooking
 - i. Boiling
 - ii. Steaming
 - iii. Stewing
4. Meaning of baking cooking method
 - It is the cooking of food using dry heat in an oven or in a pot
5. Examples of food that can be cooked using baking method
 - i. Scones
 - ii. Cakes
 - iii. Chigumu /chikondamoyo
 - iv. Biscuits
 - v. Pudding
 - vi. Fish
 - vii. Root vegetables
6. Guidelines for baking method using charcoal
 - i. Prepare the fire before preparing the food
 - ii. Wait until the wood or charcoal is glowing
 - iii. Prepare the mixture of the food
 - iv. Place either the food directly into a pot or in a baking tin on top of a layer of hot sand
 - v. Stand the pot on a three stone stove or a charcoal burner over the glowing charcoal
 - vi. Taste to see if the food is cooked by using a clean fork or knife
 - vii. If the food is cooked remove it from the
7. Advantages of baking cooking method
 - i. Food does not break up if cooked well
 - ii. Soluble nutrients are not lost
 - iii. The food looks attractive
 - iv. The flavor is improved

8. Disadvantages of baking cooking method
- i. It use a lot of fuel
 - ii. Baking ingredients are expensive
 - iii. It needs careful attention
 - iv. It not suitable for cooking food for the sick
9. Ways of removing from baking trays or pans
- i. Gently run a palette knife around the edges between the food and the pan
 - ii. Shake the pan gently up and down until the food loosens
 - iii. Turn the pan over
 - iv. Cool the food upside-down on a wire rack
10. Importance of smearing cooking oil around the baking pan before cooking
- It helps the food not sticking to the pot
11. The diagrams below shows baking method
- 
- 
- A pot and charcoal on mbaula
- a pot and charcoal on three stones
- 
- An electric oven

12. Meaning of roasting cooking method
- It is the cooking of food with little oil or without oil in an oven or fire
13. Examples of food cooked using roasting method
- i. Meat
 - ii. Fish
 - iii. Green maize

- iv. Potatoes
- v. Cassava

14. Guidelines for roasting methods

- i. Use high temperature in an open fire or an oven
- ii. Turn the food from time to time so that cooking is even
- iii. Only tender food can be successfully roasted
- iv. Baste the food with hot fat every 15 minutes to keep the outside moist and to improve the flavor

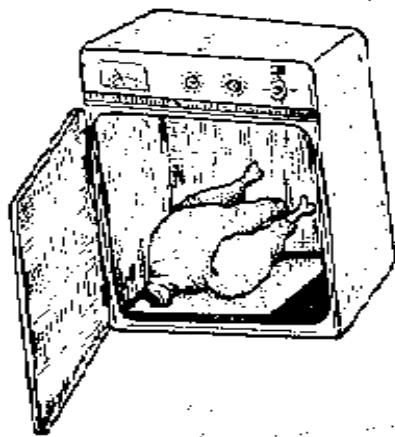
15. Advantages of roasting cooking method

- i. The food looks attractive
- ii. It is a cheap method of cooking
- iii. Few soluble nutrients are lost
- iv. The flavor of the food is improved

16. Disadvantages of roasting cooking method

- i. It cause food to lose much of its moisture
- ii. It does not make food tender
- iii. It make the food to shrink
- iv. It may burns or spoil the food

17. The diagrams shows the roasting cooking method



Roasting food in an oven



roasting food over glowing charcoal

EXERCISE 11

1. Give three examples of baked food

- i. _____
- ii. _____
- iii. _____

2. Explain three advantages of baking method

- i. _____
- ii. _____
- iii. _____

3. State four food that can be cooked using roasting method

- i. _____
- ii. _____
- iii. _____
- iv. _____

4. Why does food shrink when roasted _____

5. How is baking similar to roasting? Give two.

- i. _____
- ii. _____

6. Mention three advantages of roasting method

- i. _____
- ii. _____
- iii. _____

7. State three disadvantages of baking method

- i. _____
- ii. _____
- iii. _____

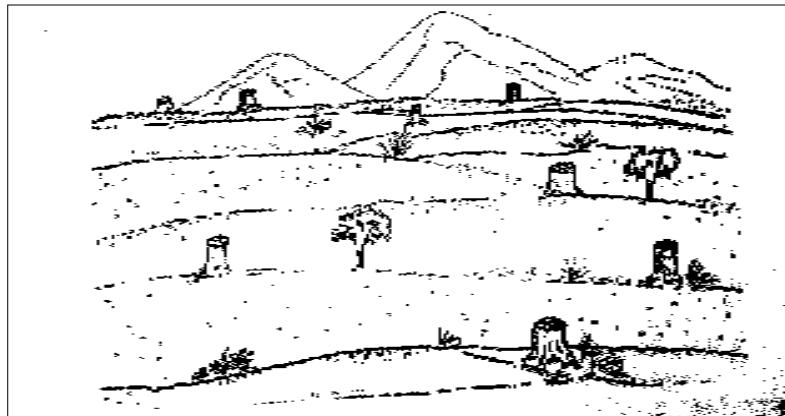
8. Describe three guidelines for baking method

- i. _____
- ii. _____
- iii. _____

UNIT 12 : TECHNOLOGIES FOR CONSERVING THE ENVIRONMENT

1. Meaning of the following terms;
 - a. Environment
 - It is the total surrounding of living things
 - b. Environmentally-friendly technology
 - It is a technology that has less negative impact on the environment
2. Activities that can lead to the destruction of the environment
 - i. Deforestation
 - ii. Setting bush fire
 - iii. Overgrazing
 - iv. Poor waste disposal
 - v. Emissions of harmful gases
 - vi. Poaching
 - vii. Charcoal production
3. Effects of destroying the environment
 - i. It leads to desertification
 - ii. Erratic rains leading to droughts and floods
 - iii. Global warming
 - iv. Soil erosion
 - v. Scarcity of water
 - vi. Decrease in animal population
 - vii. Outbreak of diseases (cancer and cholera)
 - viii. Climate change
4. Technologies used to conserve the environment
 - i. Solar driers
 - ii. Solar cookers
 - iii. Biogas
 - iv. Fuel saving stoves
 - v. Composting
 - vi. Solar panels
 - vii. Solar heaters
 - viii. Dam (a barrier for restraining water)
 - ix. Paper recycling

5. **Figure 1** shows environmental degradation



- a. Name the destruction activity
 - Deforestation
- b. Explain three effects of the activity mentioned in a above
 - i. It leads to soil erosion
 - ii. It restrict rain leading to droughts and floods
 - iii. It leads to low agricultural output due to poor soil
- c. State three ways of eradicating the practice mentioned in question a
 - i. Replanting trees where removed
 - ii. Establishment of fuel saving technologies
 - iii. Establishing restrictions on cutting down of trees carelessly

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EXERCISE 12

1. Define the term “environment” _____

2. Give four activities that can lead to the destruction of the environment
 - i. _____
 - ii. _____
 - iii. _____
 - iv. _____
3. Mention three technologies that can help to conserve the environment
 - i. _____
 - ii. _____
 - iii. _____
 - iv. _____
 - v. _____
4. Why is it important to conserve the environment? Give three reasons
 - i. _____
 - ii. _____
 - iii. _____

UNIT 13 : ELECTRICITY AND ELECTRIC CIRCUITS

1. Sources of electricity
 - i. Wind power
 - ii. Geo-thermal
 - iii. Hydro-power
 - iv. Chemical energy
 - v. Solar energy
2. Uses of electricity
 - i. Heating
 - ii. Ironing
 - iii. Cooking
 - iv. Lighting
 - v. Cooling

- vi. Cleaning
- vii. Drying
- viii. Communication
- ix. Entertainment
- x. Mixing things
- xi. Propelling machines
- xii. Air conditioning and washing

3. Examples of devices that use electricity

- i. Iron
- ii. Television
- iii. Fan
- iv. Refrigerators
- v. Cookers

4. **Figure 1** shows some electric devices



5. The table below shows components of electricity and their symbols

Component	Symbol
Cell	
Switch	
Bulb	
Connecting wire	
Fuse	

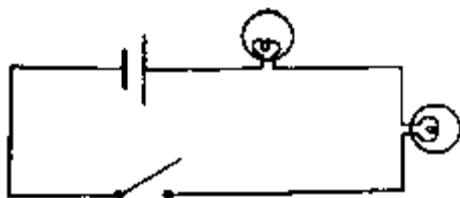
6. Types of circuits

- i. Series circuit
- ii. Parallel circuit

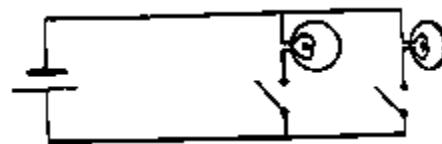
7. Meaning of the circuits mentioned above

- i. Series circuit
 - It is a circuit with one conducting path
- ii. Parallel circuit
 - It is a circuit with more than one conducting path

8. Figure 3 shows types of circuit



Series circuit



Parallel circuit

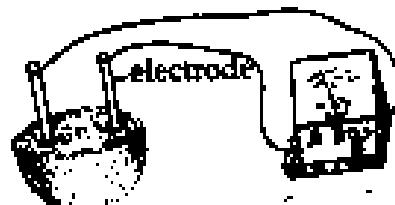
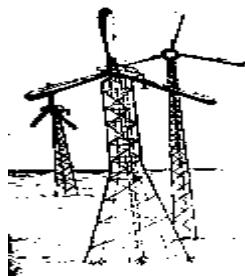
9. Advantages of parallel over series circuit

- i. The components can be controlled separately
- ii. Each component uses the total voltage from the source

10. Examples of local resources that can generate electricity

- i. Lemon fruit
- ii. Wind mills

11. Figure 4 shows ways of generating electricity using local resources



12. How does bulbs give light

- It gives light when connected to a cell, as the electric current flows it heat the tungsten wire to give light

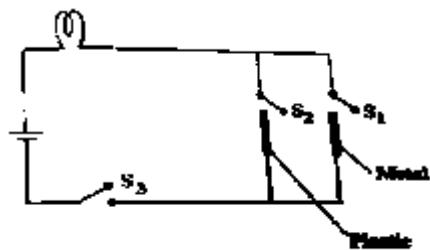
EXERCISE 13

1. State three importance of electricity

i. _____
ii. _____
iii. _____

2. What is the function of a switch in an electric circuit

3. Figure 1 shows an electric circuit. Use it to answer question 3



- a. Name the circuit

- b. What happens to the bulb when switch 1 and 2 are closed

- c. Which switches should be closed for the bulb to give light

- d. State two advantages of the circuit mentioned in 3a

i. _____

ii. _____

4. List two sources of electricity

i. _____

ii. _____

UNIT 14: FAMILY SIZE,INCOME AND FOOD SUPPLY

1. Meaning of the following terms;
 - a. Family size
 - It is a number of people in a family
 - b. Income
 - It is the amount of money one gets regularly from different activities
 - c. Food supply
 - It is the amount of food available to the family members for consumption
2. Effects of family size and food supply on the nutritional status of a family
 - i. Malnutrition
 - ii. Poor growth
 - iii. Obesity
3. Advantages of a small family
 - i. Proper growth
 - ii. Less expenses on food
 - iii. Good health
 - iv. Psychological stability
4. Disadvantages of a small family
 - i. Obesity
 - ii. High blood pressure
 - iii. Psychological instability
5. Sources of food for a family
 - i. Farming
 - ii. Buying
6. Ways in which a family can ensure food availability through the year
 - i. Proper management of food after harvesting
 - ii. Practicing irrigation system
7. How family income affect food supply
 - Lack of money for buying inputs, pesticides, seeds and labour

EXERCISE 13

1. List two sources of food for a family

i. _____
ii. _____

2. Explain how can a family income affect food supply

3. Give two way in which a family can ensure food availability throughout the year

i. _____
ii. _____

UNIT 15: LAUNDERING CLOTHES AND BED LINEN

1. Types of fibres used to make clothes
 - i. Natural fibres
 - ii. Synthetic fibres
2. The table below shows type of fibre and their examples

Type of fibre	Examples
Natural fibres	- Silk (silk worm) - Cotton (cotton plant) - Wool (sheeps, goats)
Synthetic fibres	- Nylon - Polyester - Terylene - Rayon

3. The different between natural fibre and synthetic fibre
 - Natural fibres are obtained from plants and animals while synthetic are made from combination of natural and chemical fibres

4. Method of laundering bed linen and clothes
 - i. Friction method
 - ii. Kneading and squeezing method
5. why should coloured articles be dried in the shade
 - to avoid fading of articles
6. steps to be followed when laundering woolen sweater
 - i. use kneading and squeezing method
 - ii. do not spin the sweater
 - iii. dry on the flat place to maintain its shape

EXERCISE 14

1. what are the main categories of fibre from which fabrics are made

i. _____
ii. _____

2. Give two examples of fabrics made from natural fibres.

i. _____
ii. _____

3. Why should coloured articles be dried in the shade

4. State three steps for laundering a woolen sweater

i. _____
ii. _____
iii. _____

5. Define the term “laundering”

UNIT 16: HIV AND AIDS

1. What does “HIV” stand for
 - It stands for Human Immunodeficiency Virus
2. Ways of transmitting HIV
 - i. Unprotected sexual intercourse with an infected person
 - ii. Blood transfusion
 - iii. Mother to child transfusion
 - iv. Sharing of skin cutting objects
3. What does AIDS stand for
 - It stands for Acquired Immune Deficiency Syndrome
4. Common infections and diseases associated with HIV and AIDS
 - i. TB
 - ii. Meningitis
 - iii. Cancer
 - iv. Skin infections
5. Ways of preventing HIV and AIDS transmission
 - i. Abstinence from sex
 - ii. Being faithful to a sexual partner
 - iii. Using condoms correctly
 - iv. Avoid having more than one sexual partner
 - v. Avoid sharing skin cutting objects
 - vi. Avoid cultural practices (chokolo and kulowakufa)
6. Food that should be given to people living with HIV and AIDS
 - i. Meat
 - ii. Milk
 - iii. Fish
 - iv. Seafood
 - v. Cereals
 - vi. Food containing fats and oil
 - vii. Vegetables
7. Things that people living with HIV and AIDS should avoid
 - i. Alcoholic drinks
 - ii. Smoking
 - iii. Canned food
 - iv. Junk food (chips, cold drinks, chocolates and sweets)

EXERCISE 15

1. Mention any three ways in which HIV is transmitted

- i. _____
- ii. _____
- iii. _____

2. Mention two ways in which HIV can be prevented

- i. _____
- ii. _____

3. Which food items should be included in the diet for people living with HIV and AIDS

- i. _____
- ii. _____
- iii. _____
- iv. _____

4. Describe the meanings of the following terms

a. Acquired

b. Deficiency

c. Immune

d. Immunodeficiency

e. Syndrome
