DISTRICT PUBLIC SCHOOL & COLLEGE, KASUR

NOTES/HOME TASK/WORK SHEET FOR

CLASS: **8th**

SUBJECT: **G. SCIENCE**

1ST TERM SYLLABUS: **UNIT (2, 3, 4, 6, 7)**

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Unit # 2
Sensitivity in living organisms

Answers to Exercises in Unit 2

1. (a) Define sensitivity.

Ans. The ability of an organism to respond to a stimulus is called sensitivity. In single celled organisms, the whole cytoplasm is sensitive to changes in the environment.

(b) What do you understand by the following terms?

(i) Nastic movement.

Ans. Nastic movement are non-directional movements made by a part of a stationary plant in response to an external stimulus, for example, the closing up of the leaves of a Mimosa plant on being touched.

ii) Tactic movement.

Ans. When the whole organism moves from one place to another in response to external stimuli such as light, gravity, water, and certain chemicals, it is said to exhibit tactic movements.

iii) Tropic movement.

Ans. The movement of plants towards light and gravity are called tropic movements.

(d) Auxin is a chemical substance which is made in the cells at the tips of the roots and shoots.

Auxin speeds up the growth in stems, and slows down the growth in roots.

(e) Higher animals respond to changes in their environment by taking appropriate action. The

nervous system and the endocrine system help to bring about changes in the body.

(f) The working together of all the organs and systems of the body is called coordination.

Coordination in the body is brought about by two systems—the nervous system and the

endocrine system.

2 Match the part to its function.

Part	Function
Cerebrum	Receives impulses from your eyes, ears, nose, and skin
Medulla	Controls heartbeat, breathing, etc.
cerebellum	Controls muscles and balance of the body
Thyroid Gland	Controls the speed of chemical reactions in the body
Adrenal glands	Prepares the body for action
Pancreas	Controls the amount of glucose in the blood

3. Name the two kinds of nerve cells. How are nerve cell different from other cells.

Ana. Sensory neurons motor neurons

A nerve cell has a cell body with long branches extending from it. The shorter branches are calleddendrites. Dendrites take in messages from other nerve cells. One long branch called the axon,carries messages from the nerve cell. The axon connects with other nerve cells and passes messagesto muscles, glands, or organs. Bundles of axons form nerves.Sensory nerve cells carry messages from the sense organs to the brain and spinal cord.

4. What is a reflex action? What reflex action takes place.

Ans. A quick and sudden movement which does not involve the brain is called a reflex action. Thespinal cord interprets the message and brings about the response. It takes a very short time forsuch a message to travel from the spinal cord and back to a muscle. Blinking, sneezing, coughing,and shivering are examples of reflex actions.

(a) When dust blows into your eyes?

Ans. We blink our eyes.

(b) When bright light shines into your eyes?

Ans. The iris reduces in size so that less light enters our eyes.

5. The diagram shows parts n of the human excretory system.
Name the parts labelled A to D and write the function of each part.

Ans. **A** kidney: The kidney is an organ of excretion. It removes harmful wastes that are produced by thebody.

B **Ureter**: The ureter carries the waste products (urine) from the kidneys to the bladder.

C **Bladder:** The bladder stores the urine for some time.

D **Urethra:** Urine is passed out of the body through the urethra.

6. fill in the blanks to describe the process of filtration of blood by the kidneys.

Ans. cortex, nephrons, Bowman's capsule, gomerulus, water, salts, proteins, water, dissolved, Glucose and salts, urea, urine

UNIT # 3

Cells, heredity, and evolution

Answers to Exercises in Unit 3

1. (a What is DNA? What is the function of DNA?

Ans. Chromosomes and genes are made up of a complex chemical substance called DNA(deoxyribonucleic acid). The DNA molecule is like a twisted ladder called a double helix.DNA controls the development of the characteristics that an organism inherits from itsparents. When cells divide, the DNA first duplicates itself. One copy is passed from onegeneration to the next. This is the reason why we inherit characteristics from our parents.

(b) Which kind of cell division.

(i) halves the chromosome number?

Ans. meiosis

(ii) produces cells to make the body grow?

Ans. mitosis

(c) How is a zygote produced?

Ans. At fertilization a male sex cell or sperm joins up with a female sex cell or egg to make afertilized egg called a zygote.

(d) Write down six characteristics that you have acquired.

Ans. |Swim, roller skate, cycle, drive a car, read, write

(e) Write down six characteristics that you have inherited.

Ans. eye colour, hair colour, height, shape of nose, intelligence, shape of chin

(f) What is a mutation? What causes mutation?

Ans. Sometimes, when cells divide, the structure of a chromosome or a gene may change. Thesechanges are called mutations. When gametes are formed in the sex organs there is a chance thatchanges in the structure or number of chromosomes may take place. This will seriously affectthe development of an organism.Down's syndrome and haemophilia are two diseases that are caused by mutations.Mutations can occur naturally. They can also be caused by X-rays, other forms of radiation,and by some chemicals.

(g) What does evolution mean? What theory did Darwin suggest about the evolution of new species?

Ans. Evolution means change and improvement from simple beginnings.
A theory about how evolution took place was first put forward a hundred years ago, by CharlesDarwin.Darwin suggested that:• there is variation within a population of living things;• there is a struggle for survival within populations;• some individuals are better adapted to their surroundings. They are more likely to grow andreproduce. Others will die out. This is sometimes referred to as survival of the fittest;• so, he concluded that: *'particular organisms have been naturally selected from their population, because they are better adapted than others.'*

2. (a) differentiate between the genes and chromosomes.

Ans. The nucleus of a cell contains long thread-like structures called chromosomes. These are onlyvisible when a cell is about to divide into two.Chromosomes contain a complex chemical called deoxyribonucleic acid or DNA, whichcontrols the development of the characteristics that an organism inherits from its parents. DNA contains the 'instructions' for making the characteristics of an organism, such as skin colour,hair colour, eye colour, etc.Chromosomes carry bits of information called genes, which are also made up of DNA. Genesinstruct our bodies to make proteins which determine the shape of the body and how itbehaves.

(b) differentiate between the mitosis and meiosis.

Ans. Mitosis is a kind of cell division in which the number of chromosomes in the newly formed(daughter) cells remains the same as that in the original (parent) cell. Cells having the normalset of chromosomes are said to have the diploid number of chromosomes. All the cells inanimals and plants, except the sex cells, are diploid. Meiosis is a kind of cell division which occurs only within the reproductive organs. Meiosis isconcerned with the production of sex cell or gametes. Four daughter cells, with half thenumber of chromosomes as the parent cell, are produced by meiosis.

(c) differentiate between the continuous and discontinuous variations.

Ans. All human beings have similar features, but they are not exactly alike. Differences in haircolour, height, weight, and skin colour are examples of differences that we call variations.The students in a class can be arranged in a line from the shortest to the tallest. Their heightshows continuous variation. It varies from short to tall with many small differences in between.Characteristics that are distinct, such as blood group, show discontinuous variation. You canbelong to only one group: A, B, AB, or O. People can roll their tongues or they cannot. Thereis no in-between state. Colour blindness is another example of discontinuous variation.

(d) differentiate between the inherited and acquired characteristics.

Ans. The characteristics we are born with are called inherited characteristics. Learning how to swimor having a scar on your chin are acquired characteristics.

(e) differentiate between the dominant and recessive genes.

Ans. The genes in a pair may be identical or they may be different. The child has black hair becausethe gene for black hair is dominant. It dominates the gene for blonde hair and produces thefinal hair colour.Genes which are suppressed or dominated by other genes are called recessive genes.

Unit # 4
biotechnology

Answers to Exercises in Unit 4

1. (a) What are microbes? Explain your answer with examples.

Ans. Microbes are tiny living things that can only be seen with the help of a microscope. Yeast,bacteria, and fungi are microbes. Bacteria were used to make yoghurt from milk and mouldfungi were used to make cheese.

(b) What does biotechnology mean? What are the oldest example of biotechnology?

Ans. Biotechnology is a method of using microbes to produce useful products. For centuries peoplehave been making cheese, yoghurt, bread, and vinegar, using microbes such as bacteria andyeast.

(c) How could biotechnology help solve the world's food shortage problems

Ans. Large areas of the Earth are not suitable for growing food crops. This may be due to hightemperatures, poor rainfall, or insect pests. If genes can be found to improve the ability of foodplants to survive in these conditions, food shortages might come to an end.

(d) What is genetic engineering?

Ans. Genetic engineering involves removing genes from one type of cell and transferring them toanother, completely different cell.

(e) Why have genetic engineering techniques been developed?

Ans. Scientists can make microbes and other organisms produce useful things by changing theirgenes.

(f) Why are microbes used in genetic engineering?

Ans. Animal and plant products used in agriculture, medicine, and industry are often in shortsupply, or are very expensive. The genes controlling the production of these materials inanimals and plants can be inserted into microbe cells. These genes then instruct the microbialcells to produce the required materials, which they do in much greater quantities than the original animal or plant cells, because microbes reproduce and grow at a rapid rate.

(g) Why do you suppose enzymes are called 'chemical scissors'

Ans. Enzymes used in genetic engineering are called chemical scissors because they use chemicals toremove the gene from the chromosome. They do not cut the chromosome physically.

(h) Why are plasmids? Why are plasmids used in genetic engineering?

Ans. The microbial cell in which a gene is inserted is called a plasmid. It is a small circle of DNAwhich can move from one cell to another and make copies of itself.

2. What useful role do microbes play in the following industries?

(a) Health.

Ans. The production of useful medicines such as vaccines and antibiotics is the job of thebiotechnologist. A very powerful medicine called penicillin was discovered in 1928. Penicillin isproduced by a fungus. It is an antibiotic which means it can kill germs inside the human body.Bacteria have been used to produce human growth hormones for children who do not growproperly, human insulin for diabetics, and vaccines and vitamins.

(b) Mining.

Ans. Some types of bacteria live in the soil heaps around coal and mineral mines. These bacteriafeed on the traces of minerals in the rock and oxidize them to produce energy. Sulphuric acidand iron (II) sulphate are produced as by-products. Surrounding rocks are attacked by thesechemicals and many kinds of metals are leached out.

(c) petroleum

Many of our industries depend on oil, coal, and gas. Only about one-third of the oil in theground is brought to the surface. The rest is clinging to rock particles deep below the ground.Biotechnology has provided a way to extract this remaining oil.Bacteria are pumped down an oil well and are fed with nutrients while they are deepunderground. The bacteria grow and increase in numbers. They produce chemicals that washoil from surrounding rock particles. They also produce a gas which builds up enough pressureto force the oil to the surface.

Unit # 6

Chemical reactions and chemical equations

Answers to Exercises in Unit 6

1 (a) What is the difference between an exothermic reaction and an endothermic reaction?

Ans. A reaction which gives out heat is called an exothermic reaction, e.g. fireworks are an exampleof an exothermic reaction.A reaction which absorbs or takes in heat is called an endothermic reaction. For example fryingan egg is an endothermic reaction.

(b) What information does a balanced chemical equation give us?

Ans. The reactants are on the left of the arrow. These are the chemicals that are added together atthe beginning of the reaction. The products are on the right of the arrow. The products are thechemicals that are made during the reaction. The arrow indicates the direction in which thereaction takes place.reactants → productsIf the reactants are to be heated to make the reaction take place, then the word 'heat' can bewritten above the arrow.Sometimes equations tell you whether a chemical is a solid, a liquid, a gas, or a solution(dissolved in water). This can be done by placing state symbols after the formula. The state symbols are:(s) solid (l) liquid (g) gas (aq) aqueous solution

(c) What are the rules for writing chemical equations?

Ans. Steps to follow when writing a chemical equation:
(i) Write down the word equation.
(ii) Write down the correct formula for each of the chemicals.
(iii) Add up the atoms of each element on the left-hand side of the arrow.
(iv) Add up the atoms of each element on the right-hand side of the arrow.
If there are the same numbers of atoms of each element on the left-hand side of the arrow as thereare on the right-hand side of the arrow, then the equation is balanced. If not, then balance theequation by putting numbers in front of the formulae.

Unit # 7
Acids, alkalis, and salts

Answers to Exercises in Unit 7

1. (a) Write the names of three weak and three strong acids.

Ans. Weak acids: citric acid, lactic acid, acetic acid. Strong acids: hydrochloric acid, nitric acid,sulphuric acid

(b) Name three physical properties of acids which distinguish them from alkalis.

Ans. Acids have a sour taste. Acids turn blue litmus paper red. Acids turn pH paper red.

(c) List the physical properties of alkalis.

Ans. Alkalis have a bitter taste. Alkalis turn red litmus paper blue. Alkalis are soapy to touch.

(d) How are alkalis useful in our daily lives?

Ans. Alkalis are used to make soap. They are used to clean greasy ovens. Ammonia is an alkaliwhich is used as household bleach.

2 Classify the substances as either acidic or alkaline.

Ans.

Lemon juice	Acidic
Soap powder	Alkaline
Aspirin	Acidic
Baking powder	Alkaline
Vinegar	Acidic

3 Complete the reactions.

(a) zinc chloride + hydrogen
(b) calcium chloride + water + carbon dioxide
(c) zinc chloride + water
(d) calcium chloride + water + ammonia
(e) sodium nitrate + water
(f) zinc sulphate + hydrogen
(g) copper sulphate + water (h) sodium chloride + water

4. State whether the following properties belong to acids, or alkalis, or both.

Ana. (a) acids (b) alkalis (c) both (d) alkalis
(e) both (f) both (g) acids (h) both
(i) both (j) acids

Home work for class 8th

Syllabus Unit # 2, 3, 4, 6, 7

Unseen Unit # 3

Write down all the parts of question no. 01 of above mentioned units .

Draw and label following diagrams:

1. The endocrine system page 12
2. Motor nerve cell page # 14
3. Digester page # 32
4. Genetic engineering page 30
5. EXERCISE DIAGRAMS make a model of lungs to show the process of breath (by using balloons and bottle
6. Write the comprehensive note on corona virus
7. Complete the work sheets

Activities

Mind map of corona virus

UNIT NO. 2

MCQs

(1) The ability of an organism to respond to a stimulus is called _____.

geotropism sound energy sensitivity [*sensitivity*]

(2) Responses in plants are controlled by _____.

nerves auxins light water [*auxins*]

(3) The removal of waste products from the body is called _____.

radiation suspension excretion deletion [*excretion*]

(4) _____ collects in the nephron.

Blood Carbon dioxide Urine Moisture [*Urine*]

(5) We must drink enough _____ for our kidneys to function properly.

cola tea milkshake water [*water*]

(6) A quick and sudden movement is called a _____ action.

fast reflex jerky smooth [*reflex*]

(7) The secretions of the endocrine glands are called _____.

hormones juice neurons stimuli [*hormones*]

DISTRICT PUBLIC SCHOOL AND BULLEHY SHAH DEGREE COLLEGE KASUR

CLASS 8TH

Unit No 3
Cells, Heredity and evolution

1. DNA controls the development of the body:
   i. Shape ii. Size iii. Characteristics iv. Construction
2. The student in class arranged in a line from the shortest to the tallest called:
   i. Discontinuous variation ii. Continuous variation
   iii. Mean variation iv. None of these
3. Evolution means from simple beginnings:
   i. Change ii. Improvement
   iii. Change and improvement iv. Not changed
4. Mutations can occur by:
   i. Naturally ii. Accidently iii. Process iv. Haemophilia
5. Color blindness is an example of:
   i. Discontinuous variation ii. Continuous variation
   iii. Mean variation iv. None of these
6. Gregor Mendel a scientist:
   i. German ii. Austrian iii. British iv. Arabian
7. Gregor Mendel carried out simple experiments on garden peas at:
   i. 1865 ii. 1875 iii. 1765 iv. 1795
8. The study of inherited characteristics is called:
   i. Variation ii. Haploid iii. Heredity iv. Dominant
9. Haploid number of chromosomes become four haploid gametes sometimes called:
   i. Production division ii. Reduction division
   iii. Mean variation iv. None of these
10. The first living thing appeared on earth about million years ago:
    i. 3600 ii. 3500 iii. 3400 iv. 3700

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District Public School and College, Kasur.

Amazing Science - 8

Unit 4 - Biotechnology

1. vinegar is made from:

   a) sugar b) milk c) grapes d) apple

2. Biotechnology helps in making:

   a) food b) medicine c) new materials d) all

3. Fermentation is brought about by:

   a) microbe b) fungi c) bacteria d) germs

4. Genetic engineering is involved in removing and transformation of:

   a) cell b) gene c) chromosome d) DNA

5. Chemical Scissors are used to remove gene from chromosome by special:

   a) chemical b) microbe c) enzyme d) bacteria

6. Large area of Earth are not suitable for growing:

   a) food crops b) cash crops c) plants d) herbs

7. Fusarium contains protein and fat with:

   a) 40%, 20% b) 30%, 45% c) 45%, 13% d) 20%, 60%

8. Large closed tanks used in Biogas are called:

   a) waste bins b) dry bins c) digesters d) treatment tanks

9. The oil brought about to the surface from the ground is about:

   a) one third b) two third c) half d) quarter

10. Penciline is produced by:

    a) Fungus b) algae c) plasmids d) bacteria

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Amazing Science - 8

Unit 06 – Chemical Reactions and Chemical Equations

1. Energy is taken or given out in reaction:
   a) chemical b) physical c) electrical d) all given
2. Iron and sulpher are heated together to form:
   a) iron sulphate b) iron sulphide c) sulphate iron d) sulphide iron
3. Single chemical substance is broken down into two or more different substances:
   a) combustion b) decomposition c) synthesis d) precipitation
4. Silver chloride precipitates in water because it is:
   a) insoluble b) hard c) soluble d) soft
5. The reaction which gives out heat and light:
   a) combustion b) chemical c) physical d) synthesis
6. Fireworks are example of reaction:
   a) physical b) exothermic c) endothermic d) blast
7. Frying an egg and photosynthesis are examples of reaction:
   a) physical b) exothermic c) endothermic d) chemical
8. The shot way to describe a reaction is called:
   a) chemical equation b) physical equation c) chemical reaction d) conservation
9. The chemical that are made during a reaction:
   a) reactant b) product c) synthesis d) result
10. The number of atoms in reactants and products are equal, the equation is called:
    a) forward b) backward c) balanced d) unbalanced

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Amazing Science - 8

Unit 07 – Acids, Base and Salts

1. The acids we use in our food are:
   a) weak b) strong c) neutral d) base
2. Acids that produce more hydrogen ion (H+) in water are:
   a) weak b) strong c) hard d) neutral
3. Metals react with dilute acid to produce hydrogen gas and a :
   a) salt b) chemical c) sugar d) bubble
4. Acid react with Alkaline to produce a salt and water. This reaction is called:
   a) formation b) neutralization c) fermentation d) precipitation
5. House hold cleaning products contain:
   a) ammonia b) sodium hydroxide c) calcium hydroxide d) all given
6. Tooth paste is slightly:
   a) acidic b) alkaline c) reagent d) salty
7. Some salts occur in nature in definite form or shape called:
   a) crystal b) cube c) pentagon d) hexagon
8. When salts are dissolved in water they can conduct:
   a) electricity b) heat c) water d) light
9. The chemicals that changes color in acid or base is called:
   a) methane b) ammonia c) indicator d) phenolphthalein
10. Special kind of paper coated with a chemical substance:
    a) litmus b) pH paper c) cabbage paper d) pH meter

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Unit 2: Sensitivity in living organisms

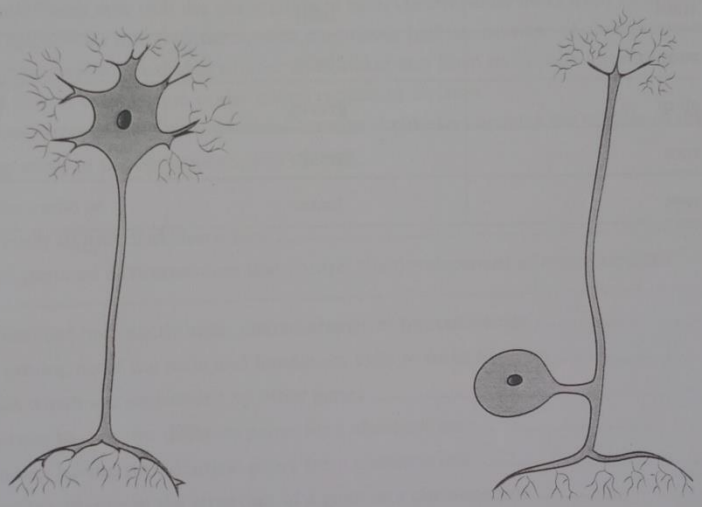
Worksheet 1

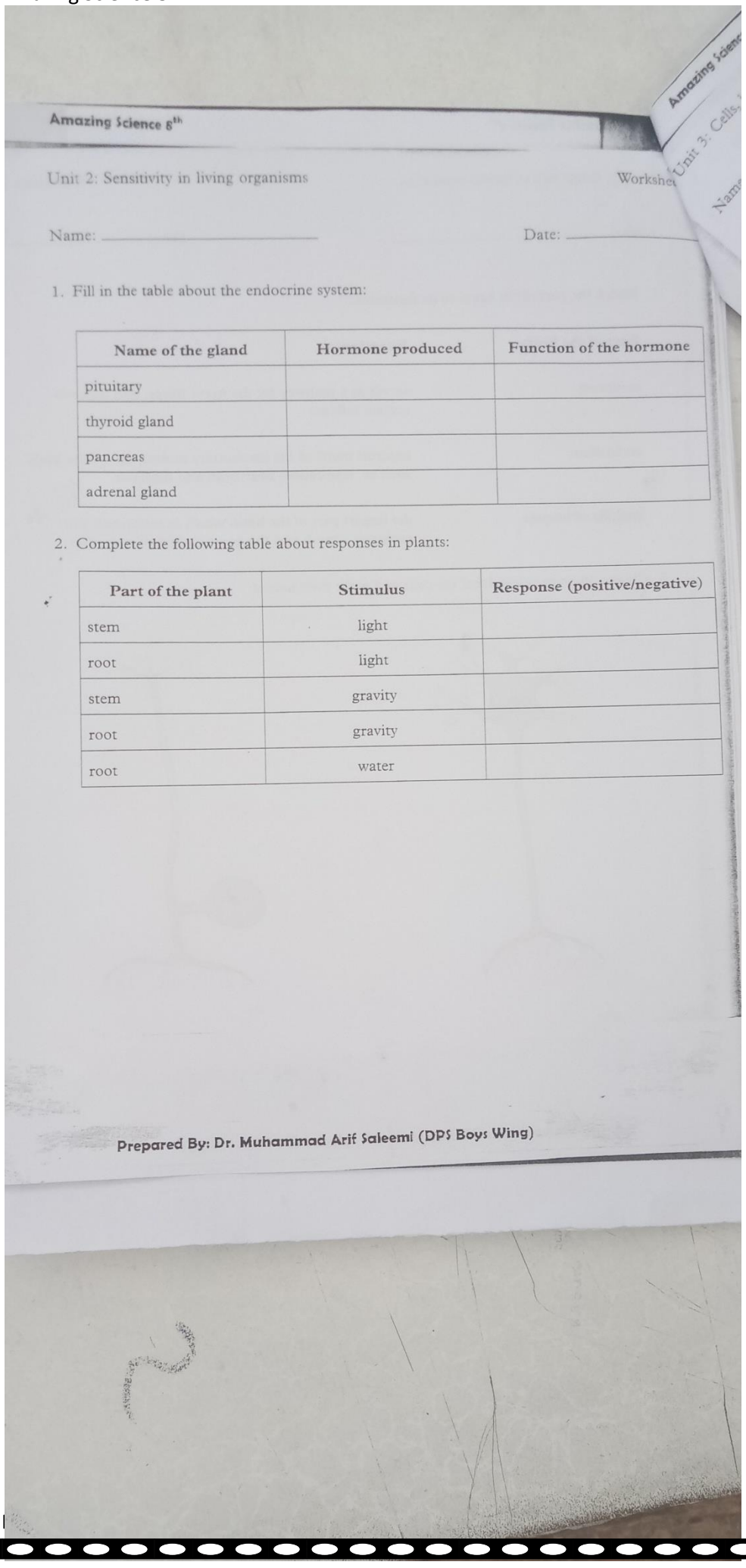
Name: _____ Date: _____

1. Match the part of the brain to its function(s):

Part of the brain	Function(s)
cerebrum	serves as a pathway for the nérve fibres; also controls certain reflexes
cerebellum	controls many of the involuntary movements of the body, such as respiration, heartbeat, and digestion
medulla oblongata	the largest part of the brain which is concerned with receiving stimuli and the coordination of responses

2. On the diagram below, label the cells and write their names:





Unit 2: Sensitivity in living organisms

Name: _____ Date: _____

1. Fill in the table about the endocrine system:

Name of the gland	Hormone produced	Function of the hormone
pituitary		
thyroid gland		
pancreas		
adrenal gland		

2. Complete the following table about responses in plants:

Part of the plant	Stimulus	Response (positive/negative)
stem	light	
root	light	
stem	gravity	
root	gravity	
root	water	

Unit 3: Cells, heredity, and evolution

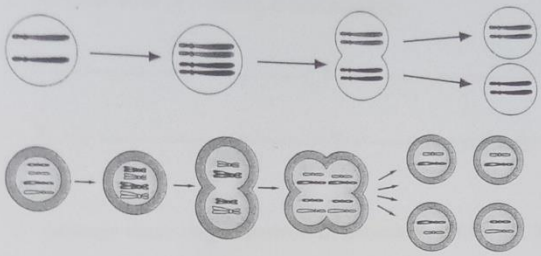
Worksheet 1

Name: _____ Date: _____

1. Name the kind of cell division that is taking place in the following diagrams:

a)

b)



a) _____ b) _____

2. Arrange the following steps in the correct order to explain the process of meiosis:

— Each chromosome replicates itself to form two chromatids.
— Spindle fibres become attached to the homologous chromosomes and pull them apart.
— Spindle fibres now pull the chromatids of each chromosome away from each other.
— The cell divides into four parts, each containing half the number of chromosomes.
— The chromosomes become shorter and thicker and form pairs called homologous pairs.
— This type of cell division is also called reduction division.
— Homologous pairs of chromosomes arrange themselves around the middle of the cell.
— They move to the opposite ends of the cell.

3. Write the name of:

a. the study of inherited characters _____
b. small parts on a chromosome that control the development of characteristics _____
c. similar, but not exactly alike, characteristics in human beings _____
d. the joining up of the male and female sex cells to form a zygote _____
e. genes which are suppressed by other genes _____
f. a person having two different genes for a characteristic _____
g. a person having two identical genes for a characteristic _____
h. a sudden change in the structure of a gene or a chromosome _____
i. change and improvement from simple beginnings _____

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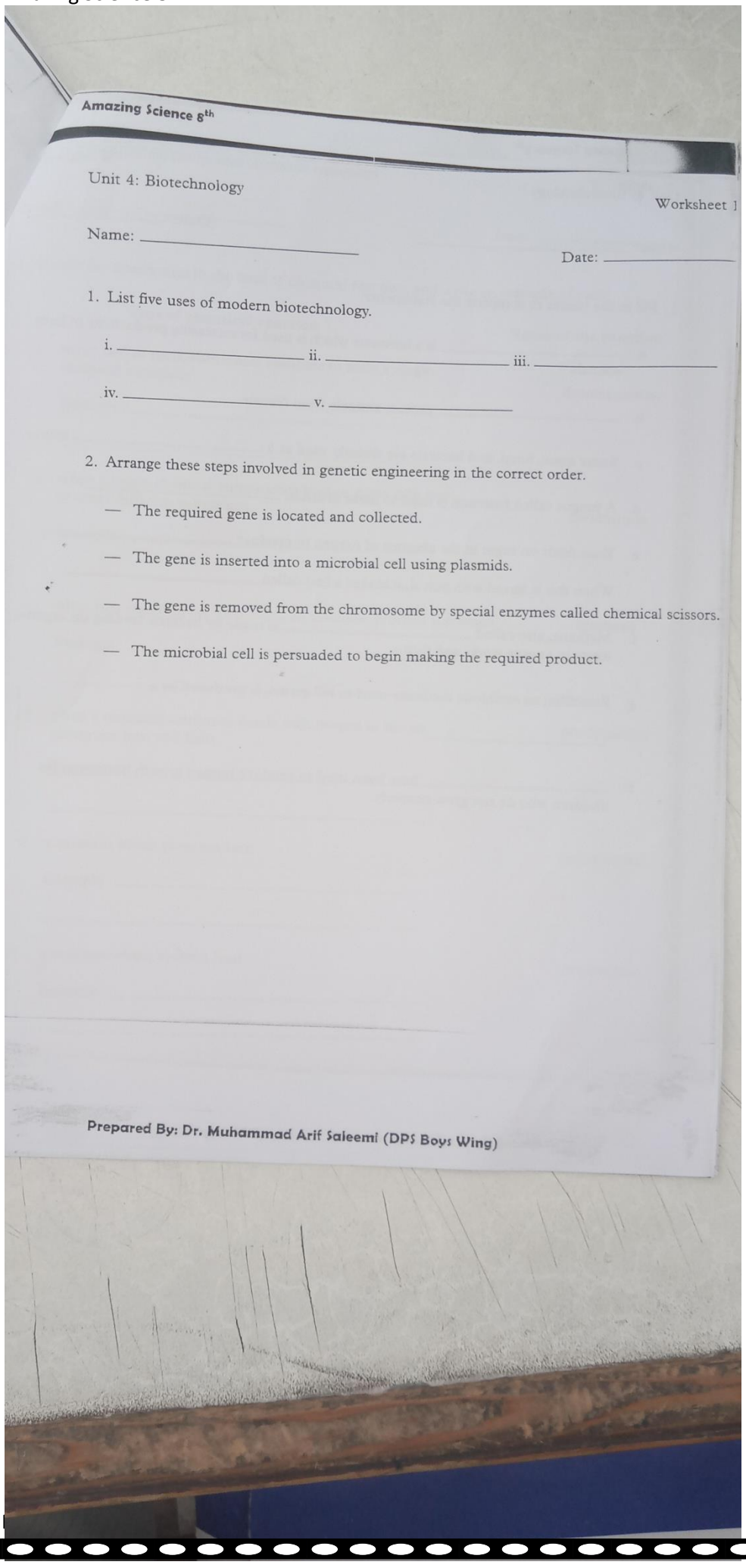

Amazing Science 8th

Unit 4: Biotechnology

Worksheet 1

Name: _____

Date: _____

1. List five uses of modern biotechnology.

i. _____ ii. _____ iii. _____

iv. _____ v. _____

2. Arrange these steps involved in genetic engineering in the correct order.

— The required gene is located and collected.

— The gene is inserted into a microbial cell using plasmids.

— The gene is removed from the chromosome by special enzymes called chemical scissors.

— The microbial cell is persuaded to begin making the required product.

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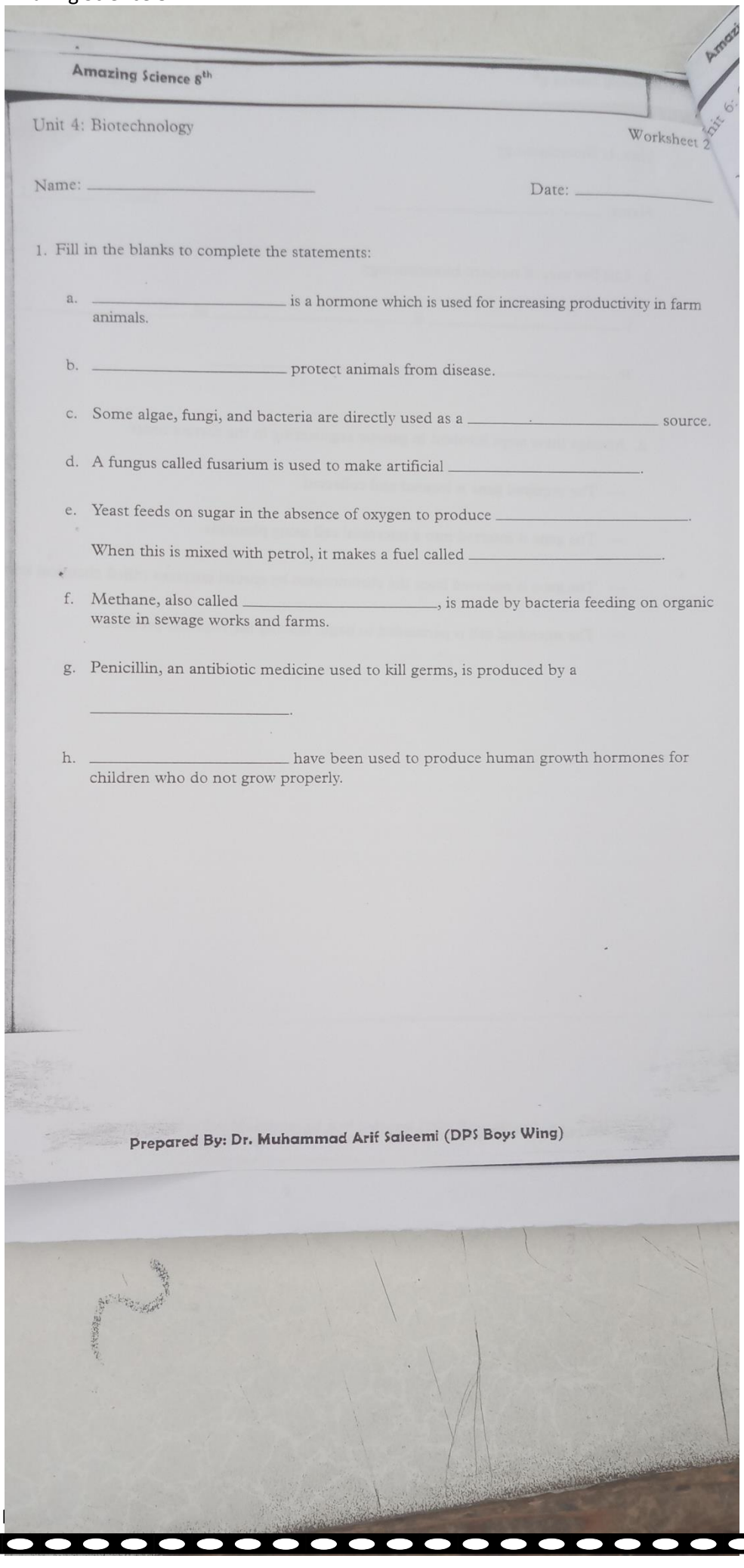

Amazing Science 8th

Unit 4: Biotechnology

Worksheet 2

Name: _____ Date: _____

1. Fill in the blanks to complete the statements:

a. _____ is a hormone which is used for increasing productivity in farm animals.

b. _____ protect animals from disease.

c. Some algae, fungi, and bacteria are directly used as a _____ source.

d. A fungus called fusarium is used to make artificial _____.

e. Yeast feeds on sugar in the absence of oxygen to produce _____.

When this is mixed with petrol, it makes a fuel called _____.

f. Methane, also called _____, is made by bacteria feeding on organic waste in sewage works and farms.

g. Penicillin, an antibiotic medicine used to kill germs, is produced by a

_____.

h. _____ have been used to produce human growth hormones for children who do not grow properly.

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Unit 6: Chemical reactions and chemical equations Worksheet

Name: _____ Date: _____

1. Match the description to the kind of chemical reaction, and write an example of each:

Type of chemical reaction	Name of the reactio
a. when two or more substances combine to form a single chemical substance Example: _____	decompositi
b. when a single chemical substance is broken down into two or more different substances Example : _____	combustio
c. when two solutions are mixed and an insoluble product is formed Example : _____	synthesis
d. when a chemical substance reacts with oxygen in the air giving out heat and light Example : _____	precipitati
e. a reaction which gives out heat Example : _____	endotherr
f. a reaction which absorbs heat Example : _____	exotherr

Unit 6: Chemical reactions and chemical equations Worksheet 2

Name: _____ Date: _____

1. Arrange the following steps of how to write a chemical equation in the correct order.

— Write down the word equation.

— Add up the number of atoms of each element on the left-hand side of the equation.

— Add state symbols.

— Balance the equation by putting numbers in front of the formulae.

— Write the correct formula for each of the chemicals.

— If the number of atoms of each element on the left hand side is equal to those on the right-hand side of the arrow, the equation is balanced.

— Add up the number of atoms of each element on the right-hand side of the equation.

2. Complete the following equations and balance them:

four hydrogen atoms + two oxygen atoms → two water molecules

two hydrogen atoms + two chlorine atoms → two hydrogen chloride molecules

two nitrogen atoms + six hydrogen atoms → two ammonia molecules

two iodine atoms + two chlorine atoms → two iodine chloride molecules

two phosphorus atoms + six chlorine atoms → two phosphorus chloride molecules

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Unit 7: Acids, alkalis, and salts

Worksheet 1

Name: _____ Date: _____

1. Complete the table below to differentiate between acids and alkalis.

Properties	Acid	Alkalis
taste		
effect on litmus paper		
effect on pH paper		
solubility		
ability to conduct electricity		
ions produced in water		
reaction with metals		
reaction with carbonates		
reaction with acids		
reaction with alkalis		

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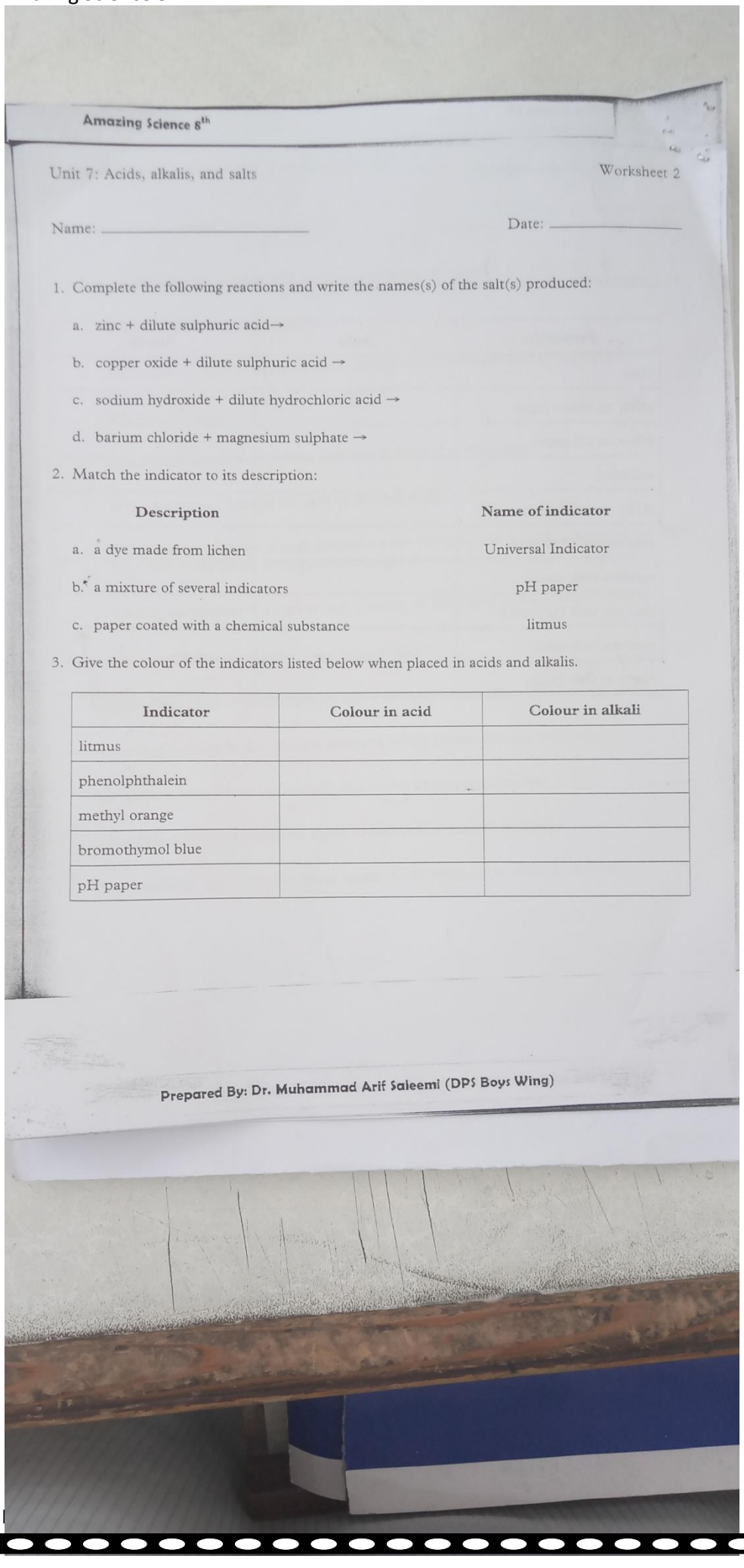

Amazing Science 8th

Unit 7: Acids, alkalis, and salts Worksheet 2

Name: _____ Date: _____

1. Complete the following reactions and write the names(s) of the salt(s) produced:

   a. zinc + dilute sulphuric acid→

   b. copper oxide + dilute sulphuric acid →

   c. sodium hydroxide + dilute hydrochloric acid →

   d. barium chloride + magnesium sulphate →

2. Match the indicator to its description:

Description	Name of indicator
a. a dye made from lichen	Universal Indicator
b. a mixture of several indicators	pH paper
c. paper coated with a chemical substance	litmus

3. Give the colour of the indicators listed below when placed in acids and alkalis.

Indicator	Colour in acid	Colour in alkali
litmus		
phenolphthalein		
methyl orange		
bromothymol blue		
pH paper		

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