1. Select the correct term from the following list to match the term DNA: protein, enzyme, uracil, sap, ethanol, mutation, thymine, chlorophyll

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1. Select the correct term from the following list to match the term Ribosome: protein, enzyme, uracil, sap, ethanol, mutation, thymine, chlorophyll

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1. Select the correct term from the following list to match the term RNA: protein, enzyme, uracil, sap, ethanol, mutation, thymine, chlorophyll

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1. What is meant by the term DNA profiling?

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1. State two uses of DNA profiling.

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1. The genetic code incorporated into the DNA molecule finds its expression in part in the formation of protein. This formation requires the involvement of a number of RNA molecules. List these RNA molecules and briefly describe the role of each of them.

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1. True or False. RNA is not found in ribosomes.

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1. What is meant by DNA profiling?

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1. Describe briefly how DNA profiling is carried out.

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1. Give two uses of DNA profiling.

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1. Answer the following questions in relation to the extraction of DNA experiment (i) It is usual to chop the tissue and place it in a blender. Suggest a reason for this (ii) For how long should the blender be allowed to run? (iii) Washing-up liquid is normally used in this experiment. What is its function? (iv) Sodium chloride (salt) is also used. Explain why. (v) What is a protease enzyme? (vi) Why is a protease enzyme used in this experiment? (vii) The final separation of the DNA involves the use of alcohol (ethanol). Under what condition is the alcohol used?

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1. What is meant by genetic screening?

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1. Parents who are suspected of being carriers of disease-causing alleles may be advised to consider a genetic test. Suggest a role for such a test after in-vitro fertilisation.

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1. Name the four bases that are found in DNA.

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1. The bases in DNA form a triplet code. What is meant by a triplet code?

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1. The triplet code is transcribed into mRNA. What does this statement mean?

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1. To which structures in the cell does mRNA carry the code?

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1. In the case of the following state: 1. An investigation in which you used it, 2. The precise purpose for its use in the investigation that you have indicated: Cold alcohol (ethanol).

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1. Explain what is meant by the term DNA profiling.

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1. Give a brief account of the stages involved in DNA profiling.

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1. Give two applications of DNA profiling.

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1. What is genetic screening?

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1. “The same amount of DNA is present in nuclei of cells taken from the liver, heart, pancreas and muscle of a rat.” (i) Use your knowledge of DNA and mitosis to explain this statement (ii) Name a cell produced by the rat which will contain a different amount of DNA in its nucleus to those mentioned above.

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1. Briefly outline how you isolated DNA from a plant tissue.

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1. The genetic code is contained within the DNA of chromosomes. Briefly describe the nature of this code.

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1. What is meant by non-coding DNA?

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1. Give one structural difference between DNA and RNA.

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1. Name the nitrogenous bases whose first letters are A and C.

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1. Where in the cell would you expect to find most DNA?

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1. DNA contains the instructions needed to make protein. These instructions are called the … code.

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1. What is meant by DNA profiling?

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1. In DNA profiling, what are used to cut DNA strands into fragments?

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1. In DNA profiling DNA strands are cut into fragments. On what basis are these fragments then separated?

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1. Give two applications (uses) of DNA profiling.

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1. For what precise purpose did you use freezer-cold ethanol (alcohol) in your isolation of DNA?

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1. For which purpose did you use each of the following in the course of your practical studies? 1.Washing-up liquid or other detergent while extracting DNA from plant tissue 2. Freezer-cold ethanol while extracting DNA from plant tissue.

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1. What are the two main events in the replication of DNA?

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1. What is meant by DNA profiling?

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1. Laboratory activity isolation of DNA from a plant tissue. (i) Give one reason why you first chopped the plant material into very small pieces (ii) Detergent and salt were added to the chopped plant material, which was then heated. Explain why the detergent was used (iii) How was this mixture heated? (iv) Why was this mixture heated? (v) Later in the activity the mixture was blended for a maximum of 3 seconds. What would happen to the DNA if the mixture was blended for longer than 3 seconds? (vi) Protease was then added to the mixture. Why was protease added? (vii) The mixture was then filtered. After filtration, where was the DNA of your plant tissue to be found? (viii) What should you do next to make the DNA visible?

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1. For what purpose did you use Freezer-cold alcohol in the course of your practical activities?

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1. Some people choose to be screened to determine their risk of getting a particular type of cancer. What is meant by genetic screening?

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1. Blood samples taken from a crime scene were put through a process called DNA profiling. During the process cells were broken down to release the DNA, which was then cut into fragments. The fragments were then separated. 1. What was used to cut the DNA? 2. On what basis were the DNA fragments separated? 3. Give an application of DNA profiling other than solving crime.

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1. True or False. DNA is a double helical shape.

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1. True or False. The base Uracil is found in DNA.

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1. In DNA, nitrogenous bases occur in complementary pairs. Explain the term complementary as used here.

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1. In each case, name the complementary base in RNA for: 1. Adenine, 2. Cytosine.

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1. Name a carbohydrate that is a component of nucleotides.

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1. Name a component of a nucleotide that is neither a carbohydrate nor a nitrogenous base.

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1. What does the ‘m’ stand for in mRNA?

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1. Give one difference between RNA and DNA, other than the nitrogenous bases.

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1. Where in a human cell would you expect to find most DNA?

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1. What is meant by DNA profiling?

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1. In DNA profiling, what is used to cut the DNA strands into fragments?

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1. Give two applications of DNA profiling.

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1. Name and outline the procedure used for analysing the DNA samples that revealed the presence of horse meat in products labelled as beef. Would the result be the same if the beef were contaminated with pig meat? Explain your answer.

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1. True or False. Replication is the copying of DNA.

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1. True or False. RNA contains the base thymine.

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1. What is meant by genetic screening?

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1. What is meant by the term junk DNA?

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1. In relation to the isolation of DNA from a plant tissue, explain why you used each of the following: 1. Washing-up or similar liquid. 2. Sodium chloride. 3. Protease. 4. Freezer-cold ethanol.

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1. Give any one base pair found in DNA.

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1. Answer the following in relation to practical work you carried out to isolate DNA from plant tissue. (i) Name a suitable plant for this activity. (ii) Below is a list of some of the steps carried out during the practical work but they are not in the correct order. A. Pour freezer-cold ethanol down the inside of the test tube containing the filtered plant extract. B. Add the mixture of the plant tissue, salt and washing up liquid to a blender. C. Chop the plant tissue into small pieces. D. Add 2 – 3 drops of protease to the filtered plant extract. Place A, B, C and D in the correct order. (iii) Why was the protease added to the filtered plant extract? (iv) What was the purpose of adding washing up liquid to the mixture? (v) What was the purpose of the freezer-cold ethanol?

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