

**BCM SCHOOL BASANT AVENUE , DUGRI LUDHIANA  
XII BIOLOGY  
ASSIGNMENT**

<b>1</b>	<p>An organism has <math>6 \times 10^9</math> bp in its DNA. Which of the following is likely to be closest in height to the length of its DNA molecule? - A wardrobe: 2 m - A tall tree: 20 m - An A4 sheet: 20 cm - A eukaryotic nucleus: 10-10 m A.</p> <p><b>A wardrobe B. A tall tree C. An A4 sheet D. A eukaryotic nucleus</b></p>	<b>1</b>
<b>2</b>	<p>In Griffith's experiment, when he injected a mixture of heat-killed S strain (virulent) and live R bacteria (non-virulent), the mice died. What type of colony/ies would he observe when the bacteria from the dead mice would be plated on a culture medium?</p> <p><b>A. Only rough colonies would be observed. B. Only smooth colonies would be observed. C. Both rough and smooth colonies would be seen. D. Each colony would have a mix of both rough and smooth textures.</b></p>	<b>1</b>
<b>3</b>	<p>Two statements are given below - one is an Assertion (A) and the other is a Reason (R). Assertion (A): DNA-dependent RNA polymerase catalyses polymerisation in the 5' to 3' direction. Reason (R): The strand with 5' to 3' polarity is called the coding strand. Which of the following is correct?</p> <p><b>A. Both A and R are true, and R is the correct explanation for A. B. Both A and R are true, but R is not the correct explanation for A. C. A is true, but R is false. D. A is false, but R is true.</b></p>	<b>3</b>
<b>4</b>	<p>a. State TWO points of similarity between the process of replication and transcription in humans.</p> <p>b. Describe the fate of the products of replication and transcription with respect to the following: location of the product/s lifespan of the product/s :In which phase/s of the cell cycle do these processes occur?</p>	<b>3</b>
<b>5</b>	<p>Given below is a DNA sequence. 5' - TAACGATCGTACATGGAT - 3' Identify the mRNA sequence that is transcribed from this DNA sequence. Can this sequence be translated? Give a reason to support your answer. [Note: Assume no post-transcriptional and post-translational modifications will take place.]</p>	<b>3</b>
<b>6</b>	<p>What does a translational unit comprise? If a codon CGA that codes for arginine is present on the mRNA after codon AUG, describe how the translation process will be done step-wise.</p>	<b>3</b>
<b>7</b>	<p>The expressions of genes are regulated by metabolic, physiological and environmental factors/conditions. With the help of TWO examples, justify this statement in the case of eukaryotes.</p>	<b>3</b>