Cell division, cell diversity and cellular organisation – 2021/20 GCE AS Biology A

1. Nov/2021/Paper-H020/01/No.12

The enzyme microtubule depolymerase is responsible for the breakdown of spindle fibres in mitosis.

Which of the phases, **A** to **D**, will have the highest number of active microtubule depolymerase enzymes?

A anaphase

B metaphase

C prophase

D telophase

Your answer ☐ **[1]**

2. Nov/2021/Paper-H020/01/No.18

Which row, **A** to **D**, shows the stages of meiosis where crossing over and independent assortment occur?

	Crossing over	**Independent assortment**
A	prophase 1	metaphase 1 and 2
B	metaphase 1	metaphase 2 only
C	prophase 1	metaphase 1 only
D	prophase 2	metaphase 1 and 2

Your answer ☐ **[1]**

3. Nov/2020/Paper-H020/01/No.4

Which of the rows, **A** to **D**, in the table below shows the correct order of increasing complexity of organisation within an organism?

A	epithelium	goblet cell	lung	respiratory system
B	epithelium	respiratory system	goblet cell	lung
C	goblet cell	epithelium	lung	respiratory system
D	goblet cell	lung	respiratory system	epithelium

Your answer ☐ **[1]**

4. Nov/2020/Paper-H020/01/No.1

Which of the following stages, **A** to **D**, of the cell cycle, would DNA polymerase be most active?

A G_1

B G_2

C mitosis

D S

Your answer ☐ **[1]**

5. Nov/2020/Paper-H020/01/No.2

Which statement, **A** to **D**, describes the function of DNA polymerase?

A break the hydrogen bonds between complementary bases

B make phosphodiester bonds between adjacent nucleotides

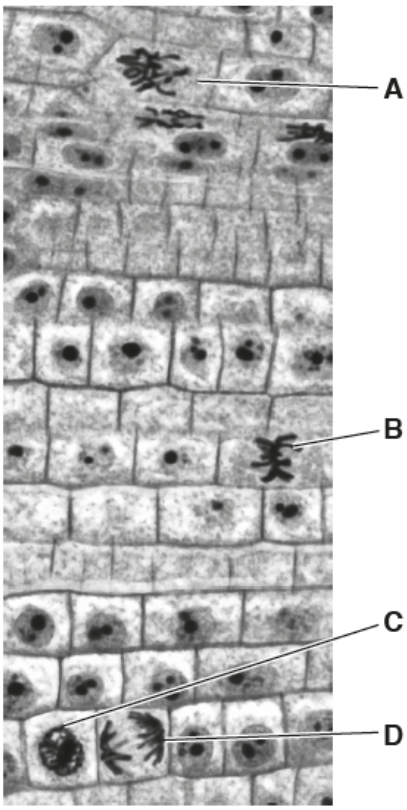
C make phosphodiester bonds between polynucleotides

D make the hydrogen bonds between complementary bases

Your answer ☐ **[1]**

6. Nov/2020/Paper-H020/01/No.12

The image below shows onion root tissue. Some of the cells in the tissue are undergoing mitosis.



Which of the label lines, **A** to **D**, shows a cell that is in anaphase?

Your answer ☐ **[1]**

7. Nov/2020/Paper-H020/01/No.21

A zygote undergoes rapid cell division.

(a) Explain why the type of nuclear division in a zygote is mitosis and not meiosis.

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..... **[2]**

(b) After many rounds of cell division, the zygote forms a blastula. A blastula is an animal embryo at an early stage of development. As the blastula develops, it becomes a hollow ball of cells with an inner cell mass. The inner cell mass is a source of embryonic stem cells.

(i) Explain the role of embryonic stem cells in the development of the embryo.

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(ii) Explain why the cells of the inner cell mass are **not** totipotent stem cells.

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