Biology · Molecular Biology · DNA and Genetic Information

Scientists' Efforts to Identify the Genetic Material

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Multiple choice questions — 53 questions

1 Which of the following represents the control experiment of Griffith's experiments?

(A) Using the living (R) strain only
(B) Using the living (S) strain only
(C) Using the living (S) strain and the living (R) strain
(D) Using the killed (S) strain and the living (R) strain

2 Which of the following is considered the most important result Griffith reached through the bacterial transformation experiments?

(A) The inheritance of the characteristics of the transformed bacterial strain
(B) Proving that DNA is the genetic material
(C) Transformation occurs between living strains only
(D) The presence of two strains of pneumonia bacteria

3 Which of the following does NOT cause the death of the mice when they are injected with it?

(A) A mixture of the living (S) strain with the living (R) strain
(B) A mixture of the heat-killed (S) and (R) strains
(C) A mixture of the living (S) strain with the heat-killed (R) strain
(D) A mixture of the heat-killed (S) strain with the living (R) strain

4 Which of the following can we conclude from Griffith's experiments?

(A) Chromosomes carry the genetic material
(B) Protein is the genetic material
(C) DNA is the genetic material
(D) Genetic material moves from a dead bacterial strain to a living one

5 In the bacterial transformation experiments, which of the following did Griffith observe?

(A) Mice infected with the (S) strain of bacteria can pass the infection to other mice

(B) All the mice resist the bacterial infection

(C) Some mice die as a result of injecting a mixture of the heat-killed (S) strain with the living (R) strain

(D) The mice gain non-pathogenic characteristics that make them resistant to the pathogenic strains

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6 Which of the following is considered the reason why Griffith studied the bacteria that cause pneumonia?

(A) Getting rid of the infected mice

(B) Treating the mice from pneumonia

(C) Producing antibodies against this disease

(D) Producing a vaccine against this disease

---

7 In what way is scalariform conjugation in Spirogyra similar to bacterial transformation in Griffith's experiment?

(A) The need for direct contact between two cells

(B) Both take place between living cells

(C) Duplication of the genetic material occurs

(D) Variation in the genetic characteristics occurs

---

8 Which of the following statements explains transformation in bacteria?

(A) Pieces of the DNA of (R) bacteria move into the DNA of (S) bacteria

(B) Pieces of the DNA of (S) bacteria move into the DNA of (R) bacteria

(C) The bacterial DNA joins with the DNA of the bacteriophage

(D) Protein moves from (S) bacteria to (R) bacteria

---

9 Which of the following reasons helps the mice stay alive after they are injected with the (R) strain of bacteria?

(A) The bacteria do not reach the blood cells

(B) The bacteria reach the blood cells and fail to reach the lungs

(C) The ability of the mice's immune system to destroy this strain

(D) The bacteria surround themselves with a capsule that isolates them from the host

---

10 What do you conclude from the transfer of DNA from the dead (S) bacterial strain to the living (R) bacterial strain, but not to the mouse cells?

(A) The genetic material of the mouse is not transformed because it died

(B) The mouse and the bacteria differ in the type of nucleic acid

(C) Transformation occurs only in pneumonia bacteria

(D) Transformation occurs only between genetically close strains

---

11 How does the experiment of Avery and his colleagues differ from Griffith's experiment?

(A) Griffith explained how bacterial transformation occurs

(B) Griffith confirmed that the transforming substance is DNA

(C) Avery and his colleagues explained how DNA moves across cells

(D) Avery and his colleagues succeeded in isolating and analysing the transforming substance

---

12 What happens when the transforming substance extracted from (S) bacteria is treated with the ribonuclease enzyme and then transferred to (R) bacteria?

(A) The (R) bacteria die

(B) The (S) bacteria gain the properties of the (R) bacteria

(C) The (R) bacteria are transformed into (S) bacteria

(D) The (R) bacteria are not affected

---

13 What is the strongest evidence that the genetic material is the cause of bacterial transformation?

(A) The new characteristics are passed on to the following generations

(B) The characteristics of the (S) strain change into the (R) strain

(C) No capsule forms around the (R) strain

(D) A capsule forms around the (S) strain

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14 In which of the following do changes happen to the (R) bacterial strain as a result of bacterial transformation?

(A) The outer shape and the genetic material only

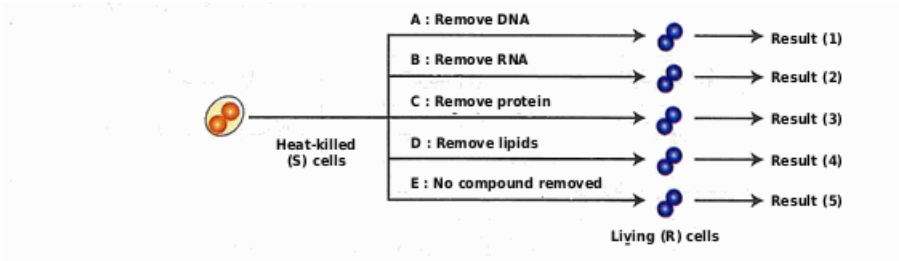
(B) The physiological processes and the genetic material only

(C) The physiological processes only

(D) The outer shape, the genetic material and the physiological processes

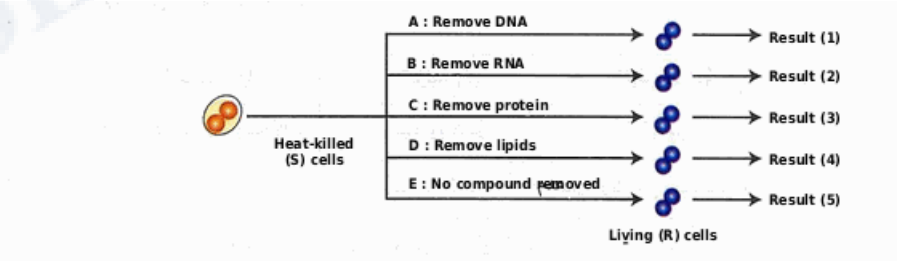
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15 The following figure shows a researcher carrying out experiments (A), (B), (C), (D) by removing different types of organic molecules from heat-killed cells of the (S) strain of bacteria before adding them to the living (R) strain and injecting living mice. In the light of this, answer:
Which of the following experiments is similar to Griffith's experiment?



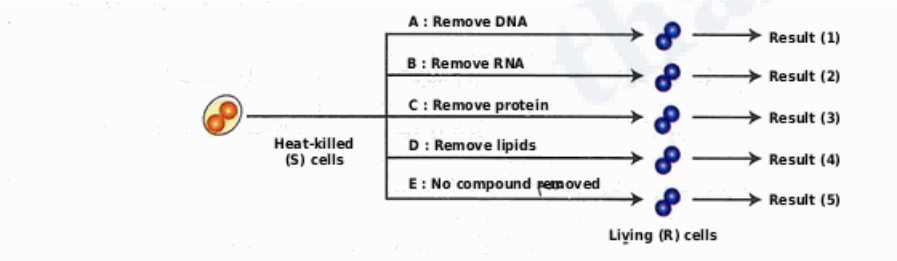
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16 The following figure shows a researcher carrying out experiments (A), (B), (C), (D) by removing different types of organic molecules from heat-killed cells of the (S) strain of bacteria before adding them to the living (R) strain and injecting living mice. In the light of this, answer:
Which of the following results include the death of the mice?

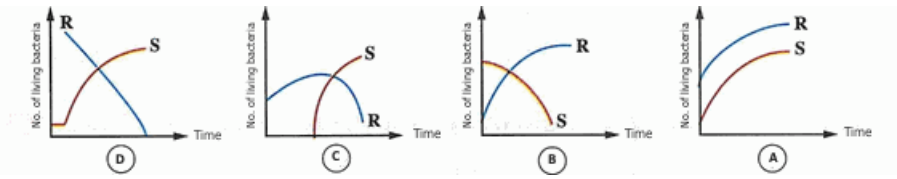


(A) Result (1) only
(B) Results (5), (2), (1)
(C) Results (5), (4), (3)
(D) Result (5) only

17 The following figure shows a researcher carrying out experiments (A), (B), (C), (D) by removing different types of organic molecules from heat-killed cells of the (S) strain of bacteria before adding them to the living (R) strain and injecting living mice. In the light of this, answer:
Which experiment confirms that DNA is responsible for bacterial transformation?



18 Which of the following graphs correctly shows the results of Griffith's experiment when the dead (S) strain is added to the living (R) strain and the mouse is injected with the mixture?



19 What happens when (S) bacteria are treated with heat, then the genetic material is treated with the deoxyribonuclease enzyme and transferred to (R) bacteria?

(A) The (R) bacteria die

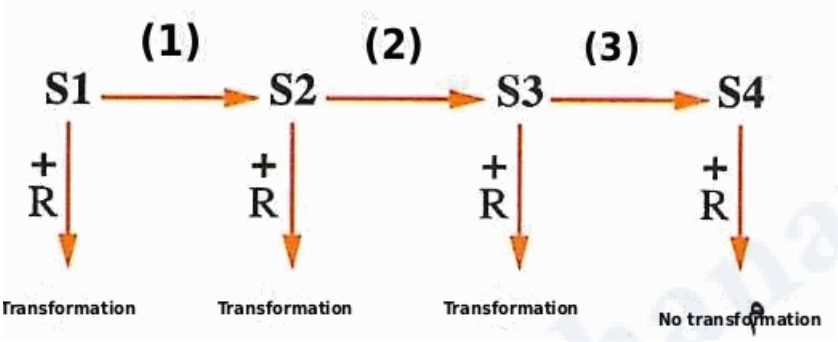
(B) The (R) bacteria gain the properties of the (S) bacteria

(C) The (S) bacteria are transformed into (R) bacteria

(D) The (R) bacteria will not be transformed into (S) bacteria

---

20 In the opposite diagram, (S) represents the dead (S) strain of bacteria, which was added to (R) bacteria before and after being treated with enzymes (1), (2), (3), in order, to test bacterial transformation. What could these enzymes be?



(A) Enzyme (1): deoxyribonuclease, (2): ribonuclease, (3): lipase

(B) Enzyme (1): lipase, (2): ribonuclease, (3): deoxyribonuclease

(C) Enzyme (1): ribonuclease, (2): deoxyribonuclease, (3): lipase

(D) Enzyme (1): lipase, (2): deoxyribonuclease, (3): ribonuclease

---

21 Which of the following is NOT one of the reasons that contribute to the death of mice after they are injected with the (S) strain?

(A) Severe pneumonia

(B) Transformation of the genetic material of the (S) bacteria

(C) The failure of the mice's immune system to destroy this strain

(D) The (S) bacteria keep multiplying

---

22 How many minutes does the phage need, after injecting its genetic material into the bacterium, until new fully formed phages are released?

(A) 4 (B) 11 (C) 28 (D) 32

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23 If you know that the bacteria grew in a nutrient medium containing radioactive phosphorus, which of the following is NOT correct about the stages in front of you?



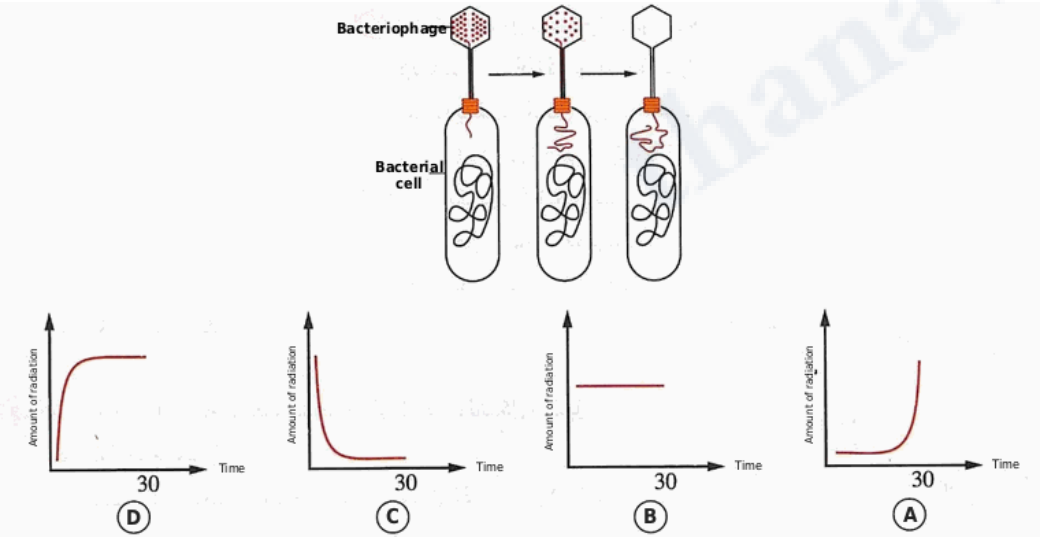
(A) Duplication of the DNA of the bacteriophage

(B) The DNA of the bacteriophage contains radioactive phosphorus

(C) DNA is the genetic material

(D) Radioactive phosphorus enters the structure of the virus coats

24 In the opposite figure, the coat of the bacteriophage was labelled with radioactive nitrogen and then it was left to attack a bacterial cell whose genetic material is labelled with radioactive phosphorus. Which of the following graphs represents the amount of radiation inside the cell over half an hour?



25 In which of the following is the genetic material RNA?

(A) Mice

(B) Wheat

(C) The AIDS virus

(D) The bacteriophage virus

26 A common characteristic of both bacteria and bacteriophage is that the genetic material is in the form of .....

(A) Two strands of DNA

(B) Two strands of RNA

(C) One strand of RNA

(D) Circular DNA

27 What was the aim of Hershey and Chase using radioactive isotopes of phosphorus and sulfur?

(A) Labelling both DNA and protein

(B) Studying bacterial transformation

(C) Studying the reproduction of the bacteriophage

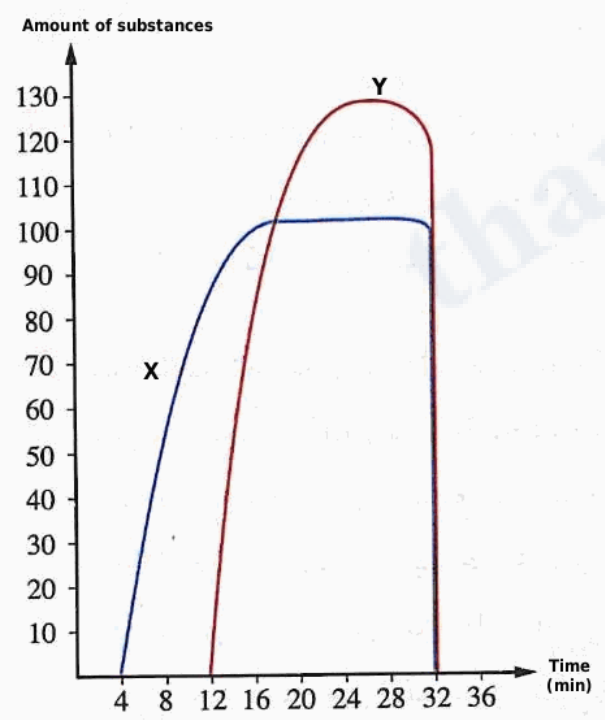
(D) Distinguishing between DNA and protein

28 What do genes represent, based on the experiment of Hershey and Chase?

(A) DNA (B) RNA (C) Protein (D) Protein and DNA

29 The opposite figure represents the rate of production of the substances that make up the bacteriophage inside the bacterial cell:

What do (X) and (Y) represent, respectively?



(A) Sulfur / phosphorus

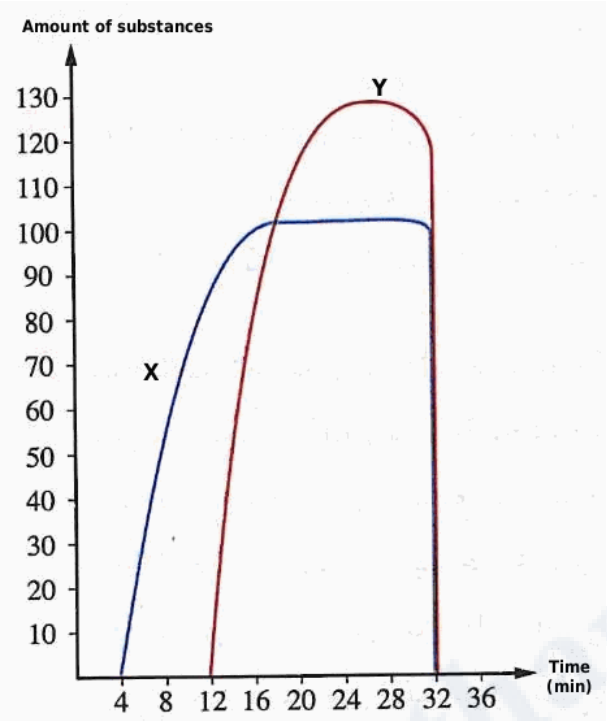
(B) DNA / RNA

(C) DNA / protein

(D) Protein / DNA

30 The opposite figure represents the rate of production of the substances that make up the bacteriophage inside the bacterial cell:

What is the reason for the amounts of (X) and (Y) inside the cell dropping to zero after about half an hour?



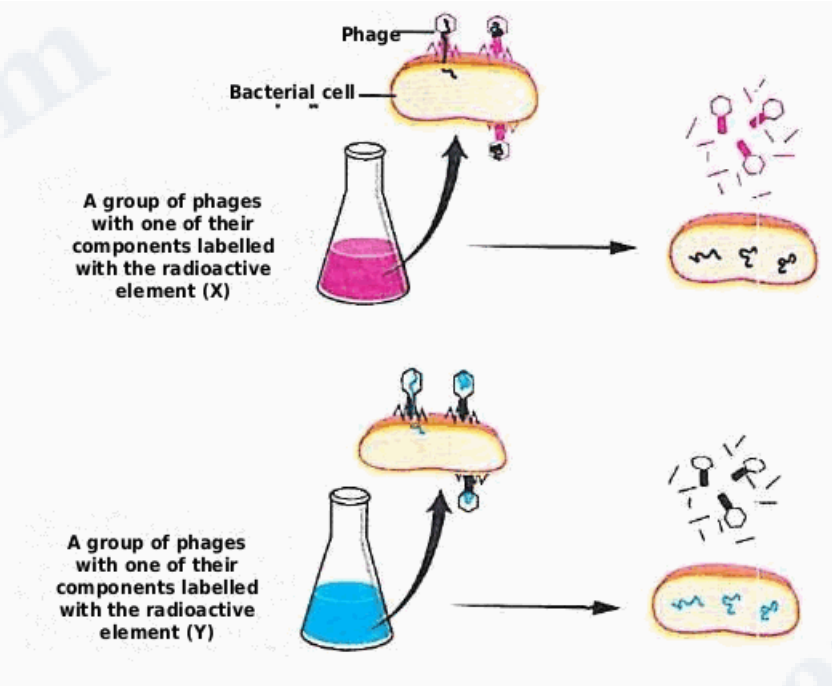
(A) The bacteria resist the phage

(B) The phage components break down

(C) An increase in radioactive sulfur

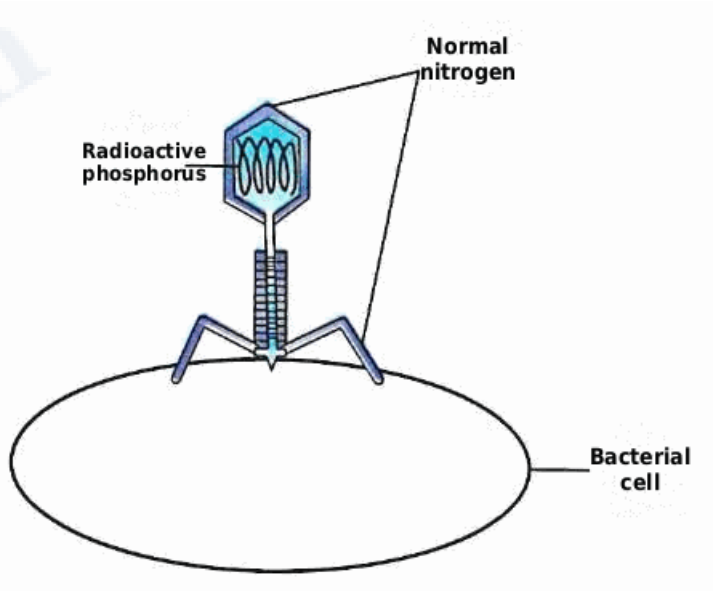
(D) The bacterial cell bursts

31 The opposite figure shows one of the experiments that proved DNA is the genetic material. What do the two elements (X) and (Y) represent, respectively?



(A) Carbon / sulfur
(B) Phosphorus / sulfur
(C) Sulfur / phosphorus
(D) Sulfur / carbon

32 Which of the following statements correctly describes the experiment shown in the opposite figure?



(A) The bacterial cell uses the viral protein to build the new viruses

(B) It proves that DNA is the genetic material and does not rule out that protein is the genetic material

(C) Part of the phosphorus enters the bacterial cell

(D) The head of the bacteriophage is made of DNA only

---

33 Which of the following is considered a reason why Hershey and Chase used radioactive sulfur to label the coat of the bacteriophage?

(A) Sulfur is very reactive

(B) Proteins cannot bind to phosphorus

(C) The protein coat contains sulfur

(D) Sulfur is distinct from the other elements that make up the bacteriophage coat

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34 In the experiment of Hershey and Chase, what percentage of the radioactive phosphorus is found inside the bacterial cell two minutes after the phage attacks it?

(A) 0 % (B) 3 % (C) 97 % (D) 100 %

---

35 Why did Hershey and Chase not use nitrogen instead of phosphorus in the bacteriophage experiment?

(A) There is no radioactive isotope of nitrogen
(B) Nitrogen enters the structure of proteins and DNA
(C) Phosphorus is more radioactive than nitrogen
(D) The radiation from nitrogen is more dangerous

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36 The nucleic acid of a bacterial strain was labelled with radioactive phosphorus and the strain was killed by heat, then it was mixed with another living, unlabelled strain. Which of the following statements is NOT correct in describing the results of the experiment?

(A) Radioactive phosphorus moves from the heat-killed strain to the living strain
(B) The resulting living cells contain radioactive phosphorus
(C) The experiment gives no evidence that protein was not transferred to the living cells
(D) Part of the radioactive phosphorus in the living bacteria changes into non-radioactive phosphorus

---

37 Which of the following is the reason why the bacteria cannot carry out their vital activities after the bacteriophage reproduces inside them?

(A) The cell's enzymes are used up
(B) The viral DNA is duplicated
(C) A lack of amino acids in the bacteria
(D) The bacterial cell bursts

---

38 When a bacterial cell is infected with a synthetic bacteriophage that has DNA from strain T4 and a coat from strain T6, to which of the following will the protein formed in the new virus belong?

(A) The bacterial cell
(B) Strain T4
(C) Strain T6
(D) Both strain T4 and strain T6

---

39 Which of the following applies to the genetic information of a eukaryotic organism?

(A) Equal in all the cells of the individual
(B) Changes in the cells produced by mitosis
(C) Found inside the nucleus only
(D) Equal in all the somatic cells of the same organism

---

40 What is the ratio between the amount of DNA in the uterus cells and the amount of DNA in the kidney cells in humans, respectively?

(A) 1 : 2 (B) 1 : 1 (C) 1 : 3 (D) 2 : 1

41 By which process does the malaria Plasmodium restore the original amount of DNA?

(A) Pollination (B) Fertilization (C) Meiosis (D) Mitosis

42 If half the amount of DNA in a cell of the scrotum of a horse equals (X), what is the amount of DNA in its liver cell?

(A) X (B) ½ X (C) 2 X (D) 4 X

43 In humans, if the number of chromosomes in a monocyte white blood cell is 46 chromosomes, what is the number of chromosomes in a neutrophil white blood cell?

(A) 23 chromosomes (B) 46 chromosomes
(C) 92 chromosomes (D) 138 chromosomes

44 A scientist extracted (4.6×10^{-12}) grams of DNA from a skin cell of a mouse. What is the amount of DNA that can be extracted from its sperm?

(A) 2.3×10^{-6} (B) 2.3×10^{-12} (C) 4.6×10^{-12} (D) 9.2×10^{-12}

45 The amount of DNA in the egg of a female aphid that produces females by parthenogenesis is ..... its amount in the egg of an aphid that produces males.

(A) half (B) double (C) the same as (D) a quarter of

46 The opposite table shows the amount of DNA in the cells of three different organisms. What do you conclude from analysing these data?

Liver cell **	Sperm **	DNA amount ** / Organism
6.90	3.25	Human
2.49	1.26	Chicken
5.79	2.67	Salmon

(A) The amount of DNA in mammals is double its amount in birds

(B) The amount of DNA in a liver cell is double that in the sperm

(C) The amount of DNA increases as the organism becomes more advanced

(D) The amount of DNA decreases as the organism becomes more advanced

47 What is the ratio between the amount of DNA in the eggs of a female Anopheles mosquito and its amount in the sporozoites of Plasmodium?

(A) 1 : 2

(B) 2 : 1

(C) 1 : 1

(D) It cannot be predicted

48 What happens if the amount of protein is equal in all somatic cells, while the amount of DNA differs in these cells?

(A) The possibility that protein is the genetic material would be more accepted

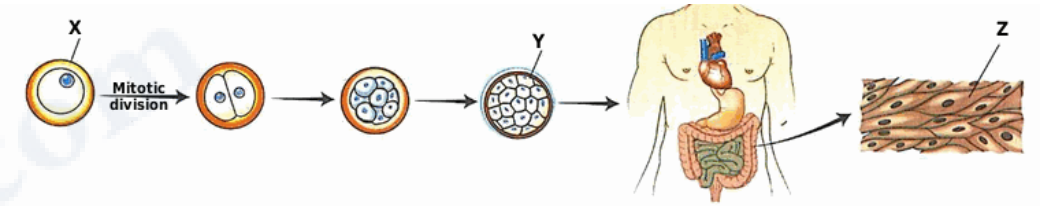
(B) The amount of DNA would be equal in the gametes

(C) The possibility that DNA is the genetic material would be more accepted

(D) DNA would double in every generation

49 From the following figures:

Which of the following is considered correct?



(A) Cell (X) contains half the chromosome number of cell (Z)

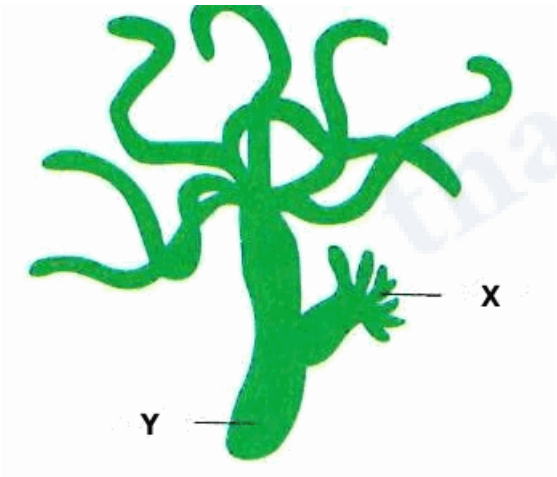
(B) Cell (Z) contains more genes than cell (Y)

(C) Cells (X), (Y), (Z) all contain the same genes

(D) Cell (Z) contains half the chromosome number of cell (Y)

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50 The opposite figure represents reproduction by budding in Hydra. If the amount of DNA in one of the cells of part (X) is (X), what is the amount of DNA in one of the cells of part (Y)?



(A) ½ X (B) X (C) 2 X (D) X^2

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51 Which of the following is correct for the cells produced by meiosis of a primary spermatocyte in the testis of a mammal?

(A) The number of chromosomes in them is half that in the secondary oocyte of the female of this animal

(B) The number of DNA molecules in them is double that in a liver cell of this animal

(C) The number of genes in them is half that in the secondary oocyte of the female of this animal

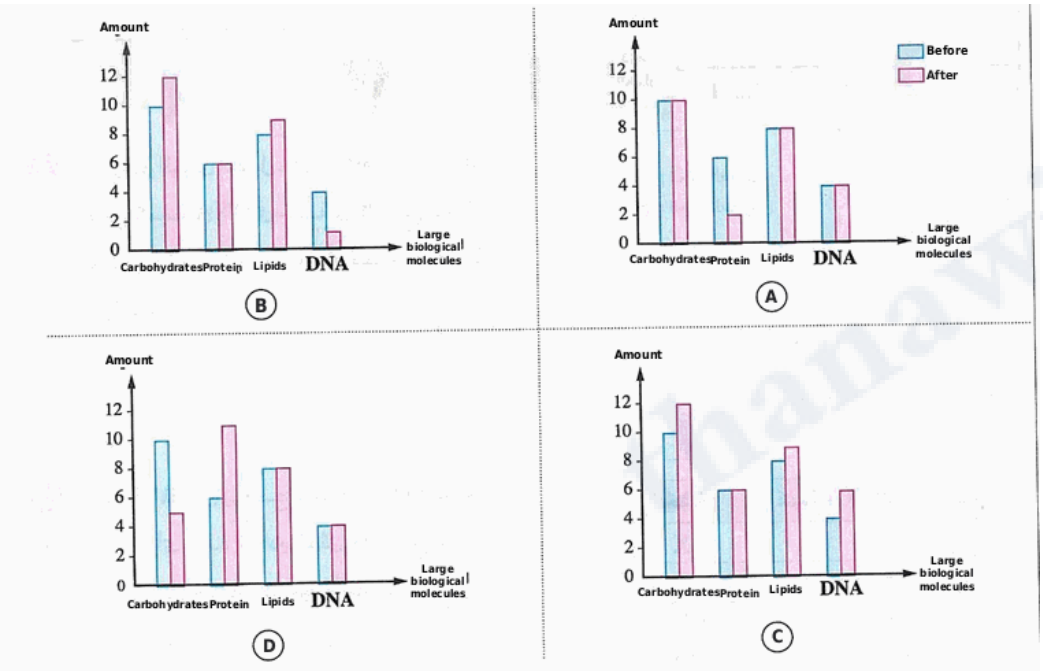
(D) The number of chromosomes in them is half that in a kidney cell of this animal

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52 The amount of DNA in the nucleus of a primary spermatocyte in the growth stage is ..... the amount of DNA in the nucleus of a Sertoli cell.

(A) a quarter of (B) half (C) double (D) the same as

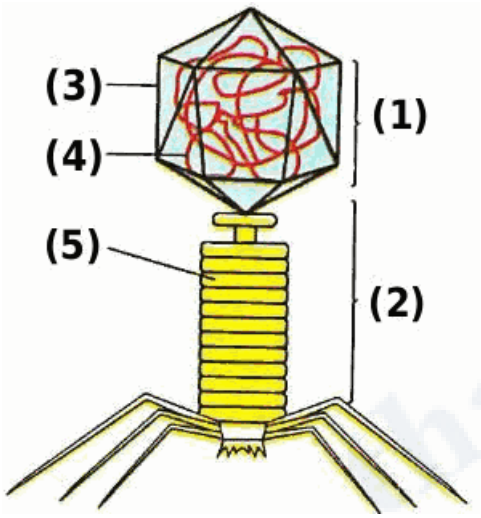
53 In a practical experiment, a researcher placed the alga Spirogyra in a tank of water containing a source of CO_2 gas and phosphate but free of nitrogenous compounds. Then the researcher measured the amount of large biological molecules (carbohydrates, proteins, lipids and DNA) in the alga before and after leaving it in this medium for a few weeks. Which of the following graphs shows the results of this experiment?



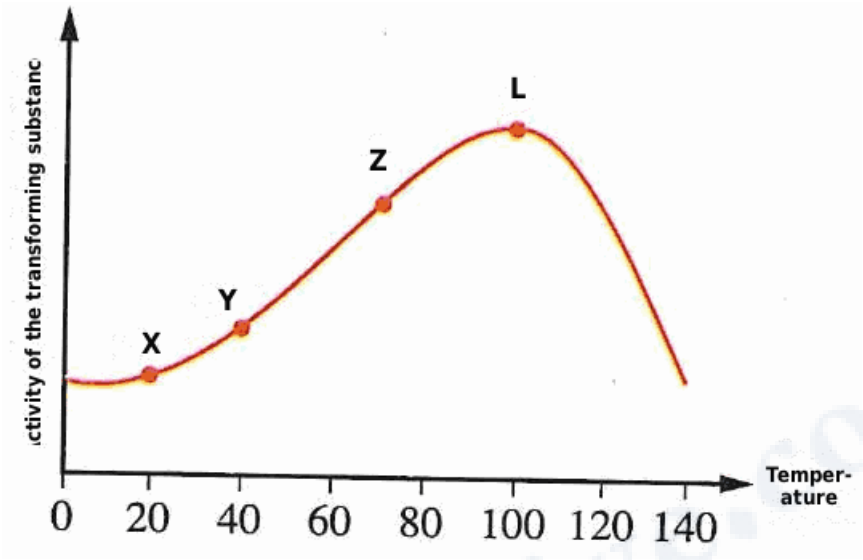
Essay questions — 5 questions

1 What happens when the transforming substance is treated with the pepsin enzyme (which breaks down protein), then this substance is added to the (R) strain of bacteria and the mice are injected with it? Explain your answer.

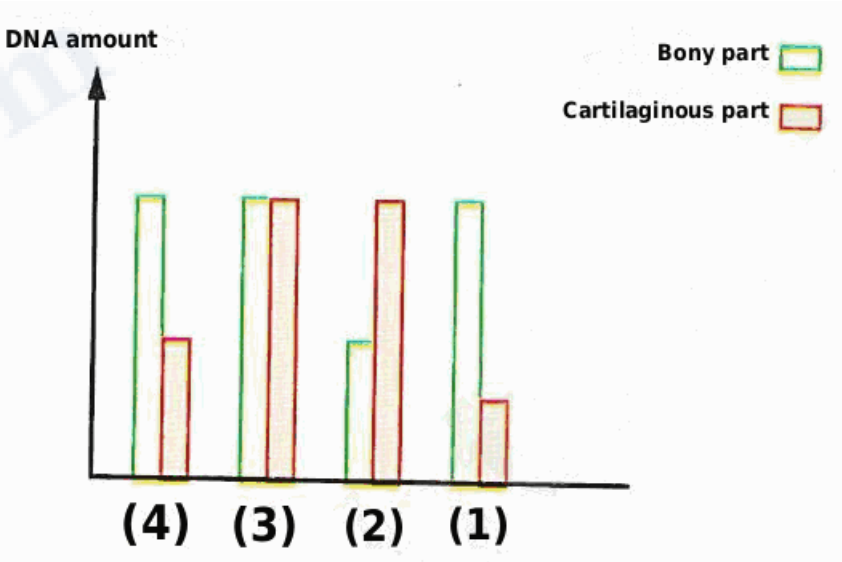
2 In the opposite figure, which shows the structure of the bacteriophage, which parts could be labelled with radioactive sulfur only in the experiment of Hershey and Chase? Explain your answer.



3 If you know that the temperature that damages all the proteins of the cell is 65°C, at which point on the opposite graph can it be concluded that DNA is the genetic material? Explain your answer.



4 From the opposite graph, which of the numbers (1) to (4) shows the amount of DNA in a cell of both the bony part and the cartilaginous part of the sternum? Explain your answer.



5 The opposite table shows the amount of DNA in some cells. Which of these cells represents a somatic cell, and which represents a gamete of the same organism? Explain your answer.
X: 215, Y: 75, L: 750, M: 110, N: 150 (amount of DNA in units)

Past exam questions — 3 questions

1 Some laboratory mice were injected with a living non-lethal strain of pneumonia bacteria (R), and the mice showed symptoms of pneumonia. After the mice recovered, they were injected again with the same living strain (R), and two days later they were injected with the killed lethal strain (S). What do you expect to happen to these mice? (2nd session 2022)

(A) All the mice die
(B) Some mice die
(C) Symptoms of pneumonia appear
(D) No symptoms appear

2 What is the likely result if the genetic material of a strain of bacteria resistant to antibiotics is transferred to another strain that does not have the same resistance? (Sample exam 2025)

(A) The resistant strain will be transformed into a non-resistant strain
(B) The non-resistant strain will be transformed into a resistant strain
(C) Neither strain will be transformed into the other
(D) Each strain will be transformed into the other

3 A scientist transferred the DNA of a strain of bacteria resistant to penicillin into another strain of bacteria that is not resistant to penicillin. Who carried out an experiment similar to this one? (Sample exam 2025)

(A) Watson and Crick
(B) Avery
(C) Griffith
(D) Franklin

Answer key and solutions

Multiple choice questions

1 A	2 A	3 B	4 D	5 C	6 D	7 D	8 B	9 C	10 D
11 D	12 C	13 A	14 D	15 D	16 C	17 A	18 C	19 D	20 B
21 B	22 C	23 D	24 B	25 C	26 A	27 D	28 A	29 C	30 D
31 C	32 B	33 C	34 A	35 B	36 D	37 D	38 B	39 D	40 B
41 C	42 C	43 B	44 B	45 B	46 B	47 D	48 A	49 C	50 B
51 D	52 D	53 A							

1 **Answer (A)**

The control experiment is injecting the non-pathogenic (R) strain alone, so the mice do not die.

2 **Answer (A)**

3 **Answer (B)**

The death of the mice needs a living (S) strain, or a killed (S) strain with a living (R) strain.

A completely heat-killed mixture does not give a living (S) strain.

4 **Answer (D)**

The genetic material moved from the dead (S) strain to the living (R) strain.

5 **Answer (C)**

The mice died after being injected with a mixture of the killed (S) with the living (R).

6 **Answer (D)**

7 **Answer (D)**

Scalariform conjugation and bacterial transformation both give variation in the genetic characteristics.

8 **Answer (B)**

In transformation, pieces of the DNA of the dead (S) strain move into the living (R) strain.

9 **Answer (C)**

The (R) strain is non-pathogenic, so the immune system of the mice destroys it.

10 **Answer (D)**

DNA moved between the genetically close pneumonia bacteria and did not move into the mouse cells.

11 **Answer (D)**

Avery and his colleagues isolated and analysed the transforming substance, while Griffith did not know its type.

12 **Answer (C)**

Ribonuclease breaks down RNA and does not affect DNA, so transformation occurs as usual.

13 **Answer (A)**

Passing the new characteristics on to the following generations is evidence that the genetic material is the cause of transformation.

14 **Answer (D)**

Transformation transfers new DNA, so the outer shape (the capsule) and the physiological processes change with it.

15 **Answer (D)**

Griffith's experiment: killed (S) cells with living (R) cells without removing any compound, which is experiment (E).

16 **Answer (C)**

The mice die when transformation occurs, and only removing DNA prevents it (result 1).
The choice in which all the results are death is (5), (4), (3).

17 **Answer (A)**

Removing DNA (experiment A) prevented transformation, so DNA is responsible for it.

18 **Answer (C)**

(R) multiplies first, so its number increases, then many of them are transformed into (S).
So the number of (R) decreases and the number of (S) increases.

19 **Answer (D)**

The deoxyribonuclease enzyme breaks down DNA completely.
So transformation does not occur, that is, (R) will not be transformed into (S).

20 **Answer (B)**

Enzymes (1) and (2) did not prevent transformation, so neither of them is deoxyribonuclease.
Enzyme (3) prevented transformation, so it is deoxyribonuclease.
Lipase breaks down fats, and ribonuclease breaks down RNA.

21 **Answer (B)**

Transformation occurs in the non-pathogenic (R) strain, not in the (S) strain.

22 **Answer (C)**

23 **Answer (D)**

Radioactive phosphorus enters the structure of the phage DNA.
The phage coat is protein, which contains sulfur.

24 **Answer (B)**

The radiation in the DNA of the bacterial cell stays inside it, and the radioactive coat of the phage stays outside it.
So the amount of radiation inside the cell stays constant.

25 **Answer (C)**

The genetic material of the AIDS virus is RNA.

26 **Answer (A)**

The genetic material in bacteria and bacteriophage is double-stranded DNA.

27 **Answer (D)**

They labelled DNA with radioactive phosphorus and protein with radioactive sulfur to distinguish between them.

28 **Answer (A)**

The experiment proved that DNA is the genetic material, that is, it is the genes.

29 **Answer (C)**

(X) rises first, so it is DNA, because the phage DNA is duplicated first.

(Y) rises after it, so it is the protein, which is made afterwards.

30 **Answer (D)**

After about half an hour the bacterial cell bursts and the new phages come out.

31 **Answer (C)**

(X) appears outside the cell, so it is sulfur, which labels the protein.

(Y) appears inside the cell, so it is phosphorus, which labels DNA.

32 **Answer (B)**

Radioactive phosphorus labels DNA only, so the experiment proves that DNA is the genetic material.

The experiment does not rule out the role of protein because it was not labelled.

33 **Answer (C)**

Sulfur enters the structure of protein, so it is suitable for labelling the protein coat.

34 **Answer (A)**

35 **Answer (B)**

Nitrogen enters the structure of both proteins and DNA, so it does not distinguish between them.

36 **Answer (D)**

Radioactive phosphorus stays radioactive and does not change into non-radioactive phosphorus.

37 **Answer (D)**

The reproduction of the phage inside the cell makes it burst.

38 **Answer (B)**

DNA is what carries the genetic information, so the proteins of strain T4 are formed.

39 **Answer (D)**

The amount of DNA and its genes are equal in all the somatic cells of the same organism.

40 **Answer (B)**

The cells of the uterus and the kidney are somatic, so the amount of DNA in them is equal.

41 **Answer (C)**

Fertilization doubles the amount of DNA, and meiosis returns it to the original.

42 **Answer (C)**

A somatic cell has 2X, and the liver cell is also somatic.

43 **Answer (B)**

All somatic cells have the same number: 46 chromosomes.

44 **Answer (B)**

The sperm has half the amount of DNA of a somatic cell.

$4.6 \times 10^{-12} \div 2 = 2.3 \times 10^{-12}$

45 **Answer (B)**

46 **Answer (B)**

The amount of DNA in the liver (somatic) cell is about double its amount in the sperm.

This is repeated in the three organisms.

47 **Answer (D)**

The two organisms belong to two different species, so the ratio between their amounts of DNA cannot be predicted.

48 **Answer (A)**

An equal amount of DNA in the somatic cells is what is expected of the genetic material.

If its amount differed, the constant protein would more likely be the genetic material.

49 **Answer (C)**

All the body cells came from the zygote by mitosis, so they have the same genes.

50 **Answer (B)**

Budding is mitotic division, so the amount of DNA in all the cells is equal and equals X.

51 **Answer (D)**

The cells produced by meiosis are haploid.

And the somatic cell from the kidney has double the number of chromosomes.

52 **Answer (D)**

53 **Answer (A)**

The absence of nitrogenous compounds prevents protein formation, so part of the existing protein is used up and its amount decreases.

As for DNA, its amount does not change because it is constant.

Essay questions

1 **Model answer**

Some mice die / because the non-lethal (R) strain of bacteria is transformed into the lethal (S) strain, since the pepsin enzyme acts only on protein and does not break down the DNA molecule responsible for bacterial transformation.

2 **Model answer**

(2), (3), (5) / because they are the protein parts of the virus (the bacteriophage), which contain the element sulfur.

3 **Model answer**

L / because after temperature (L) (100°C) the activity of the transforming substance decreases, due to the complete breakdown of DNA.

4 **Model answer**

(3) / because the amount of DNA is equal in different types of somatic cells of the same organism.

5 **Model answer**

Cell (N) represents a somatic cell, and cell (Y) represents a gamete of the same organism / because the amount of DNA in gametes equals half the amount of DNA in the somatic cells of the same organism.

Past exam questions

1	2	3
D	B	C

1 **Answer (D)**

After recovery the mice develop immunity against the (R) bacteria, so the immune system destroys them before they are transformed.

And the (S) strain is killed, so no symptoms appear.

2 **Answer (B)**

The genetic material transfers the characteristic to the receiving strain (bacterial transformation), so the non-resistant strain is transformed into a resistant strain.

3 **Answer (C)**

The experiment is bacterial transformation: genetic material moves from one strain to another, which gains its characteristic, and this is what Griffith observed.