~ Ғ ʒ ˆ ث ~

. (ث)

w̄ ȁ O ˆ 3 №˘ ˝ 30 №˜

1. ԋ (Super secondary structure)
2. ѿ (Immunoprecipitate)
3. ʐ (Enzyme specific activity)
4. (Glycolysis)
5. A β (Ribosome A-site)
6. ̤ ƀ (Combined deamination)
7. ̂ ̂ ̂ (Tricarboxylic acid cycle)
8. (Coenzyme)
9. ǐ (Denaturation of nucleic acid)
10. (Hyperchromic effect)

ԋ ȁ ˆ 1 №˘ ˝ 20 №˜

1. ˘ ˆ ˜ غˆ ˜ Â
2. ضي DNA ↓ Ţ w̄ № ˘ p ˧ ƀ ˘ ↓ Կˆ ˜ Â
3. ˧ β ˆ ˜˘ ˧ β ê ˜ ˆ ˜ . ̤ Â
4. غج Կ № Ţ Ƨ Ա Ի غˆ ˜˘ Ң ǐ شخ ǐ ˆ ˜˘ ą 260 nm Ք ƀ Â
5. w̄ ɑ A ȁ B ȁ C ̂ ̂ ̂ №≢ Կ Kma ȁ Kmb ȁ Kmc˘ Ғ Kma>Kmb>Kmc˘ ↕ ˆ ˜˘ ƀ ˛ غ ʐ ˆ ˜ Â
6. ضي Ա Ի ɾ ʃ ̤ Ţ˘ Կˆ ˜ غ ˆ ˜ Â

7. NADPH №ضي ~ Ţ ˘ h G ๆ ˘ p Ӟ ˜ Y ضي ~

Ỳ Ӣ NAD+˘ ~ ت Ᵽ Â

8. w̄ ə CoA غ w̄ ə ⁂ U ˜ ˚ ˆ ~

ATP غˆ ~ ə Â

9. ˘ 2 ˆ ~ ضي ƀ Ӣ ч ˆ ~ ~ Y ˡ ỉ ɪ

. ≠ Â

10. ˛ ˆ ~ Â Ỳ ضي Gˆ ~ Â

⁂ ȁ ˆ ɡ , 1 №, ˝ 20 №˜

1. ۋ ئۈ ɾ ˛ Ţ˘ ˜ Ţ . ˛ ˆ ~ Â

A Ӯ B. Ӯ C. D. ثم E. ثم

2. Ӣ ↓ ǟ ƀ ⱡ ɥ ˛ ỉ ǟ ƀ ۋ ئۈ ˛ ˆ ~ Â

A. B. C. D. ʒ E. ʕ

3. DNA RNA ˛ ɑ ˘ ˘ ỉ ˆ ~ Â

A. . — B. . / C. . D. . . E. . .

4. ˛ w̄ D ˘ № ( ) Â

A. B. DNA ḱ ʐ

C. DNA ˛ ʼn D. ỉ U ˛ ʒ .

E. ᾠ

5. DNA RNA ˛ № Ţ˘ ƀ Ω˘ ˜ ˆ ~ Â

A. . ˚ B. ˚ C. 1˚ D. E. ɣ,ʻ,ʼ ƀ

6. DNA ˡ № ˡ ˘ ˆ ~ Â

A. ˡ ˥ Ḡ B. ˡ ˥ ƀ

C. ˡ 3'-->5' d D. ╟ ˛

E ˡ ˘ ɾ Ᵽ ǖ˘

20. ضم ɑ ̈ ˘ ⁷ ѿ ˘ غج ˘ ضي ѿ № ⅄

ɒ Ӣ̣˘ ѣ ˛ غ ʐ Â

21. ضي r ṗ ضي DNA ɣ Watson-Crick ₮ ĭ ضي Â

22. DNA ĭ ӊ h ѿ ĭ Â

23. r ṇ̃ r ⅄ r r ⅄̣ ѿ № Â

24. ǯ Ỵ̀ ĭ Â

25. ī̃ Ḇ ĭ r Ţ pH˘ ǯ ⌠ β ˘ V_{max}

ǯ˘ p ѣ ǯ Km Â

26. ضي ɢ ' ʒ ƀ ч ⅄ ˘ Ӟ r

Â

27. ═ ɢ ì Ƨ فج ˘ ѿ ѣ .

ī Â

28. ⁻ r ṗ ą . غ Â

29. . ضي ˘ CoA - . ضي r ṗ Â

30. ⁻ r ṗ ɱ B_6˘ PP˘ B_{12} غ ̂ ˘ شخ Ψ

ꟼ Â

л ȁ ѣ (25 №˘ ˝ 50 №)

1. غج ч r ѡ غج ˘ ˛ Ӈ غج ˛ :

1-2 ꟼ ʒ غج ⅄ Â

2. A ѣ B شخ ضي ɢ □ ѿ Ţ˘ A ѣ B ӊ

ˆ ε ˜ ˘ ⅄ Â

ѿ ȁ O ˆ 2 №˘ ˝ 20 №˜

1. ԧ Ḥ ąˆ Second messengers˜
2. ˆ Malpighian tube˜
3. › ` ˆ Apoptosis˜
4. ๆ ˆ Basal metabolic rate˜
5. ˆ Microcirculation˜
6. ᴰˆ Cytoplasmic inheritance˜
7. غج ˆ Gene flow˜
8. ᵝ ŋˆ Niche overlap˜
9. ˆ Climax community˜
10. □ ˆ Homologous structure˜

ԧ ȁ ˆ 1 №˘ ˝ 30 №˜

1. ԧ ˘ ѿ ˆ ˜˜ ɢ ج ṕ ’ ѿ ˆ ˜˜ ɢ ج Â
2. № Ţ'ˆ ˜ ΐ ˘ Ӟ كح ˗ ’ ضي ˆ ˜ غ ˜ ƀ Ӣ Â
3. ơ ˆ ˆ ˆ ˜ ȁ ˜ غ ȉ r : ơ Â
4. ɾ ѡ ˆ № ч ˆ ˜ غ ˆ ˜˜ ȉ Ţ ╟ ƀ ѿ ˜ ˘ U ƀ r ѿ ˜ Â
5. ˆȁ ˜ ȁ غ ˘ ч ΐ ˆ ˜’ ˆ ˜˜ ˜ ˛ ɢ ȉ Ţ’ Ӣ ˆ ˜˜ ȉ ṕ ˆ ˜ Â
6. ضي . ˆ ʒ ԧ ɑ ' ѿ ₮ ʒ ˝ □ ˘ ѿ ₮ ʒ ’ ˆ ˜ ч ˝ □ ˪ ʒ ˘ ˆ ˜ ч ˪ ʒ ʐ φ Â
7. ƀ ΐ ˆ ˜˜ ˆ ˜˜ ƀ L ˆ ˜˜ γ ƀ ˛ ث Â

8. ˆ ˜ ˥ ӊ ʊ ˗ ˘ˆ ˜ ₮ r

˗ ˆ ˜ ضر ї́ ˗ ˘ ɢ ї ₮ ʒ̂ ˜

˘ ą ї ضي ŋ ʒ Â

9. ˅ ɷ̂ ˜ ӊ ˜ ˘ ˥ β

ѣ □ №≢ ч̂ ˜ ȁ ˜ غ̂ ˜ Â

10. к v ˆ ˜ غ̂ ˜ ˘

ˆ ˜ Â

ȁ ˆ 15 №˘ ˝ 60 №˜

1. ҽ ᵖ ˗ . ѣ ѡ Â

2. ك з h ضي ї ʒ ˚ v ˛

3. DNA Â

4. ӊ ˘ ˘ ˥ r- غ K- Â

ضم ȁ ˆ 20 №˘ ˝ 40 №˜

1. ṗ ѣ ѡ Â

2. ˛ r ṗ № ѣ ε ƀ ˪ Â

ѿ ȁ O ˆ 3 №˘ ˝ 30 №˜

1. (Lipopolysaccharides, LPS)
2. ї ˛ ƀ (Denitrification)
3. غج (Metagenome)
4. ѿ r (Cloning vector)
5. (Lysogeny)
6. (Exotoxin)
7. (Activated sludge)
8. غج (Recombination)
9. ü (Fermentation)
10. ˛ ƀ (Attenuation)

ҥ ȁ ˆ 1 №˘ ˝ 20 №˜

1˙ № ȁ ˛ Ī ´ _____ ȁ _____ ȁ _____ غ _____ضم Â

2˙ _____ ¬ Â

3. _____ ȁ _____ ȁ _____ Â

4˙ Ī Ҥ _____ ȁ _____ ȁ _____ غ _____ з Â

5˙ Ҡ غ ѡ ˘ ї Ҡ˜ № ч _____ ȁ _____ غ _____ Â

6˙ ʌ غ r №≢ ч _____ غ _____ Â

7˙ Ҥ ѿ ѡ № ч _____ غ _____ ц Â

8˙ ȁ Ī ч _____ Â

ȁ ȁ ˆ ѿ ҩ ˜ ˆ 2 №˘ ˝ 30 №˜

1˙ ʌ r ƀ کی r з ˆ ˜ Â

(A) r (B) Ƨ ц (C) Ғ ṗ (D) ҥ №

2˙ Ҥ № ч ( ) Â

(A) , (B) غ (C) ɜ Ç (D)

3˙ Ţ ˆ ˜ Â

(A) r (B) (C) - á - Ç (D)

4˙ ɐ ˆ ɣ L ˘ ≠ ɥ ˆ ˜ Â

(A) ε ˜ (B) ˝ ˜ (C) Ʌ ˜ (D) ˜

5˙ pH ṿ ɔ ˆ ˜ Â

(A) Ţ (B) Ţ Ẓ (C) Ţ Ẓ (D)

6˙ √ ɐ r Ī Ţ ą ɥˆ ˜ Â

(A) 0.1% (B) 0.3%-0.5% (C) 1.5%-2.0% (D) 5%

7˙ غ ɥ ( ) Â

(A) 105 Ņ˘ 2 (B) 121 Ņ˘ 30 №

(C) 160 Ņ˘ 2 (D) 160 Ņ˘ 4

8˙ ˆ ˜ Â

(A) (B) (C) (D) Ẋ K

9˙ . ƀ´ ˆ ˜ Â

(A) DNA Ɇ (B) ī̃ (C) L ḱ

(D) ƀ

10˙ h ɢ ˆ ˜ Â

(A) (B) (C) Ḥ (D) Ḥ

11˙ r № ʃ ʻḤ ȁ ʻḤ ˗ ǭ̃ w̄

r ˆ ˜ Â

(A) IgM (B) IgG (C) IgA (D) IgD

12˙ ǭ̈ ₮ ˆ ˜ Â

(A) (B) ˆ (C) (D)

13˙ ˆ ˜ ƀ ˝ r Â

(A) (B) (C) (D) ı

14˙ Ţ ( ) Â

(A) (B) √ (C) (D)

15˙ Ţ˘ . ƀ غ ī̈ . ƀ №≢ ˆ ˜ Â

(A) Ī غ Ī (B) Ī

(C) Ī غ Ī (D) Ī

ضم à ˆ ˜ 70 №˜

1˙ ·e ᵖ L ĭ √ Â 20 №˜

2˙ ضي˝Ḥ ضر . Ţ ƀ ĭ ì Â 15 №˜

3˙ ì̆ № D № ĭ ì ⁄ Â 20 №˜

4˙ ˆ ˘ ⁿ v ˛

˜ ⁄ Â 15 №˜

D

ѿ ȁ O (5 №ˇ ˜ 35 №)

1. Ꙗ ˆ Centromomerẽ
2. ˆ Recombinnationñ
3. ˆ Transposonš
4. ˆ Saltatory replicationñ
5. ´ ω ˆ Hybrid dysgenesĩs
6. ˆ Oncogenẽ
7. ˆ Trisomic̃

ꙗ ȁ ˆ 2 №ˇ ˜ 24 №˜

1. ĭ DNA ˆ _____ȁ _____ غ _____ Â
2. ꙗ ꙋ D ˘ ˇ _____ غ _____ Â
   ˜ 7 _____ ˘ ꙗ Â
3. ˆ 1977 Woese ˆ № ˆ _____ȁ
   _____ غ _____ Â
4. ˆ ˆ r ˆ ˆ 3 № ˆ
   _____ȁ ȁ _____ȁ _____ غ ˆ ↓ Â

ȁ ȁ ∞ (2 №ˇ ˜ 6 №)

1. 1937 ˘ ˆ Theodosius Grygorovych Dobzhansky˜ ü ê D
   غ ˆ ⅞ ˆ Â ˜
   A ’ B
2. 1952 ˘ ˆ r r 23 46 Â ˜
   A ’ B
3. 2002 ˘ ˆ ˆ Â ˜
   A ’ B

ȁ ˆ 15 №ˇ ˜ 45 №˜

1. ĭ ꙗ Â
2. ρ DNA ꙗ ḱ Â

3. ᛋ ↓ (Simple Sequence Repeat SSR) ĭ ì ʜ Â

ɲ ȁ (20 № ˘ ˜ 40 №)

1. DNA └ ƀ ʌ DNA └ ƀ ▯ Â

2. غ ˘ ˘ غ ق ɥ ṕ ض Â