

※只有一個選擇是最好的，請務必將答案填寫於答案卷首頁之「答案表」。

第一部份：1~40 題，每題兩分。

1. Which statement about ABO blood groups and alleles is the best ?
 - a. When there are multiple functional alleles of a locus in a population, the situation can be described as a single nucleotide polymorphism.
 - b. In ABO blood groups, *A* and *B* alleles are dominant in *AO* and *BO* heterozygous. Neither *A* nor *B* can be regarded as uniquely wild type.
 - c. In ABO blood groups, lack of function is represented by the functional alleles *A* and *B*.
 - d. In ABO blood groups, the *OO* homozygous has wild type galactosyltransferase enzyme activity.
 - e. none of the above.
2. When you see a nonsense mutation in a mRNA, which is most likely not to be related ?
 - a. ARE binding protein
 - b. NMD
 - c. tRNA suppressor
 - d. Amber, Opal, Ochre mutation
 - e. Increased degradation of the mRNA
 - f. none of the above.
3. Which protein binds the 5' methyl cap of mRNA ?
 - a. eIF4G
 - b. eIF1A
 - c. PABP
 - d. eIF4B
 - e. eIF5B
 - f. eIF1
 - g. eIF5B
 - h. eIF4E
 - i. eIF5
 - j. eIF4A
 - k. eIF3

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- l. eIF2
 - m. eIF3B
 - n. none of the above is correct.
4. Rare modified bases in tRNA is a common phenomenon. Inosine is a modification of
- a. Uridine
 - b. Uracil
 - c. Cytidine
 - d. Cytosine
 - e. Adenosine
 - f. Adenine
 - g. Guanosine
 - h. Guanine
 - i. None of the above
5. Which statement about the lac operon is the best ?
- a. The O^c operator mutations are trans-acting.
 - b. The O^c operator mutations are cis-acting.
 - c. IPTG can convert *lac* repressor into inactive form.
 - d. IPTG can convert *lac* repressor into active form.
 - e. The mRNA transcribed from *lac* operon is monocistronic.
 - f. The mRNA transcribed from *lac* operon is polycistronic.
 - g. a, c and e are correct.
 - h. b, c and e are correct.
 - i. b, c and f are correct.
 - j. b, d and e are correct
 - k. a, d and e are correct.
 - l. a, c and f are correct.
 - m. a, d and f are correct.
 - n. b, d and f are correct.
6. The *E. coli* tryptophan operon is controlled by attenuation.
- a. An attenuator is an intrinsic translation terminator.
 - b. An attenuator is an intrinsic transcription terminator.
 - c. Attenuation can be controlled by transcription.
 - d. Attenuation can be controlled by translation.
 - e. a and c are correct.

- f. b and c are correct.
- g. a and d are correct.
- h. b and d are correct.
- i. none of the above is correct.

7. Which statement is the best ?

- a. Animal and plant genomes code for many short (~22 base) RNA molecules, called siRNAs.
- b. Animal and plant genomes code for many short (~22 base) RNA molecules, called microRNAs.
- c. The Dicer enzyme is related to bacteria RNAase.
- d. The Dicer enzyme is related to bacteria DNAase.
- e. The siRNA directs cleavage of the mRNA in the middle of the paired segment. These reactions occurs within the Dicer complex.
- f. The siRNA directs cleavage of the mRNA in the middle of the paired segment. These reactions does not occur within the Dicer complex.
- g. a, c and e are correct.
- h. a, c and f are correct.
- i. b, c and e are correct.
- j. b, c and f are correct.
- k. a, d and e are correct.
- l. a, d and f are correct.
- m. b, d and e are correct.
- n. b, d and f are correct.

8. About lamda phage, which statement is the best ?

- a. repressor maintains lytic cycle but is absent during the lysogeny state.
- b. repressor maintains lysogeny but is absent during the lytic cycle.
- c. repressor uses a helix-loop-helix motif to bind DNA.
- d. repressor uses a helix-turn-helix motif to bind DNA.
- e. the DNA-binding form of repressor is a monomer.
- f. the DNA-binding form of repressor is a dimer.
- g. a, c and e are correct.
- h. a, d and e are correct.
- i. a, c and f are correct.
- j. a, d and f are correct.
- k. b, c and e are correct.
- l. b, d and e are correct.

- m. b, c and f are correct.
- n. b, d and f are correct.
- o. none of the above is correct.

9. About *E. coli* DNA polymerase I, which statement is the best ?

- a. It has a 3'-5' exonuclease activity to provide a "proofreading" error-control system.
- b. It has a 5'-3' exonuclease activity to provide a "proofreading" error-control system.
- c. The Klenow fragment of DNA polymerase I contains the polymerase and the 5'-3' exonuclease activities.
- d. The Klenow fragment of DNA polymerase I contains the polymerase and the 3'-5' exonuclease activities.
- e. The small fragment (35KD) of DNA polymerase I is used for the *in vitro* nick translation reaction so that a segment of one strand can be replaced with newly synthesized material.
- f. The Klenow fragment of DNA polymerase I is used for the *in vitro* nick translation reaction so that a segment of one strand can be replaced with newly synthesized material.
- g. a, c and e are correct.
- h. a, d and e are correct.
- i. a, c and f are correct.
- j. a, d and f are correct.
- k. b, c and e are correct.
- l. b, d and e are correct.
- m. b, c and f are correct.
- n. b, d and f are correct.
- o. none of the above is correct.

10. About the bacterial RecBCD system, which statement is the best ?

- a. RecBCD binds a double-strand break at the right site of *chi* sequence.
- b. RecBCD binds a double-strand break at the left site of *chi*.
- c. RecBCD unwinds the duplex and degrades one strand from 3'-5' as it moves to the *chi* site.
- d. RecBCD unwinds the duplex and degrades one strand from 5'-3' as it moves to the *chi* site.
- e. The *chi* site triggers loss of the RecB subunit and nuclease activity.
- f. The *chi* site triggers loss of the RecC subunit and nuclease activity.

- g. The *chi* site triggers loss of the RecD subunit and nuclease activity.
 - h. a, c and e are correct.
 - i. a, c and f are correct.
 - j. a, c and g are correct.
 - k. a, d and e are correct.
 - l. a, d and f are correct.
 - m. a, d and g are correct.
 - n. b, c and e are correct.
 - o. b, c and f are correct.
 - p. b, c and g are correct.
 - q. b, d and e are correct.
 - r. b, d and f are correct.
 - s. b, d and g are correct.
 - t. none of the above is correct.
11. About transposition, which statement is the best ?
- a. Nonreplicative transposition allows a transposon to move as a physical entity from a donor to a recipient site. This leaves a break at the donor site, which is lethal unless it can be repaired.
 - b. Replicative transposition allows a transposon to move as a physical entity from a donor to a recipient site. This leaves a break at the donor site, which is lethal unless it can be repaired.
 - c. Conservative transposition allows a transposon to move as a physical entity from a donor to a recipient site. This leaves a break at the donor site, which is lethal unless it can be repaired.
 - d. Nonreplicative transposition creates a copy of the transposon, which inserts at a recipient site. The donor site remains unchanged, so both donor and recipient have a copy of the transposon.
 - e. Replicative transposition create a copy of the transposon, which inserts at a recipient site. The donor site remains unchanged, so both donor and recipient have a copy of the transposon. Conservative transposition involves direct movement with no loss of nucleotide bonds.
 - f. Conservative transposition create a copy of the transposon, which inserts at a recipient site. The donor site remains unchanged, so both donor and recipient have a copy of the transposon. Replicative transposition involves direct movement with no loss of nucleotide bonds.
 - g. a and e are correct.
 - h. b and e are correct.

- i. c and e are correct.
- j. a, d and e are correct.
- k. b, d and e are correct.
- l. c, d and e are correct.
- m. a and f are correct.
- n. b and f are correct.
- o. c and f are correct.
- p. a, d and f are correct.
- q. b, d and f are correct.
- r. c, d and f are correct.
- s. none of the above is correct.

12. Which combination may form the basis for a structure resembling a histone octamer, such a structure may be responsible for the nonsequence-specific interactions of $TF_{II}D$ with DNA.

- a. $TAF_{II}230$
- b. $TAF_{II}42$
- c. $TAF_{II}62$
- d. $TAF_{II}150$
- e. $TAF_{II}250$
- f. a and b
- g. a and c
- h. a and d
- i. a and e
- j. b and c
- k. b and d
- l. b and e
- m. c and d
- n. c and e
- o. d and e
- p. none of the above combination is correct.

13. About Pol II transcription machinery, $TF_{II}A$ may activate TBP by relieving the repression that is caused by the

- a. $TAF_{II}230$
- b. $TAF_{II}42$
- c. $TAF_{II}62$
- d. $TAF_{II}150$

e. TAF250.

14. Which statement is the best ?

- a. PCAF is a transcriptional activator
- b. CBP/p300 is a transcriptional coactivator
- c. PCAF acetylates H3
- d. CBP/p300 acetylates H4
- e. a and d are correct.
- f. a, b and c are correct.
- g. a, b and d are correct.
- h. b, c and d are correct.
- i. c and d are correct.
- j. a and b are correct.
- k. a, c and d are correct.
- l. a and c are correct.
- m. b and c are correct.
- n. b and d are correct.

15. In splicing reaction, which complex can be regarded as a spliceosome ?

- a. E complex
- b. A complex
- c. B1 complex
- d. B2 complex
- e. C1 complex
- f. C2 complex

16. The first transesterification reaction in splicing is a nucleophilic attack

- a. by the 3'-OH of the invariant A of the branch sequence on the 3' splice site
- b. by the 3'-OH of the invariant A of the branch sequence on the 5' splice site
- c. by the 2'-OH of the invariant A of the branch sequence on the 3' splice site
- d. by the 2'-OH of the invariant A of the branch sequence on the 5' splice site.

17. About complementation test, which statement is the best ?

- a. Failure to complement means that two mutations are part of the same genetic unit.
- b. Failure to complement means that two mutations belong to two different genetic unit.
- c. Mutations that do not complement one another are said to comprise part of the same complementation group.
- d. Mutations that do complement one another are said to comprise part of the same complementation group.
- e. Another term that is used to describe the unit defined by the complementation test is the mutant locus. This is the same as the gene.
- f. Another term that is used to describe the unit defined by the complementation

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test is the cistron. This is the same as the gene.

- g. a, c and e are correct.
- h. a, d and e are correct.
- i. a, c and f are correct.
- j. a, d and f are correct.
- k. b, c and e are correct.
- l. b, d and e are correct.
- m. b, c and f are correct.
- n. b, d and f are correct.
- o. none of the above is correct.

18. Among statements below, which is the best ?

- a. the meaning of tRNA is determined by its anticodon and not by its amino acid.
- b. the meaning of tRNA is determined by its amino acid and not by its anticodon.
- c. All amino acids are represented by more than one codon. The only exceptions are methionine and tryptophan.
- d. All amino acids are represented by more than one codon. The only exception is methionine.
- e. Multiple tRNAs representing the same amino acid are called isoaccepting tRNAs.
- f. Multiple tRNAs representing the same amino acid are all recognized by the same synthetase, they are also described as its cognate tRNAs.
- g. a, c and e are correct.
- h. a, d and e are correct.
- i. a, c, e and f are correct.
- j. a, d, e and f are correct.
- k. b, c and e are correct.
- l. b, d and e are correct.
- m. b, c, e and f are correct.
- n. b, d, e and f are correct.
- o. a and c are correct.
- p. a and d are correct.
- q. b and c are correct.
- r. b and d are correct.
- s. none of the above is correct.

19. The only aminoacyl-tRNA that cannot be recognized by EF-Tu-GTP is

- a. Ala-tRNA

- b. fMet-tRNA^f
- c. Met-tRNA^m
- d. Met-tRNAⁱ
- e. Met-tRNA^o

20. Which chemical is used to demonstrate that GTP is required for aa-tRNA to be bound at the A site, but the hydrolysis is not required until later ?

- a. Kirromycin
- b. Puromycin
- c. GMP-PCP
- d. Fusidic acid
- e. Streptomycin

21. The three codon AUU, AUC and AUA for Isoleucine can be recognized by tRNA with

- a. Adenosine
- b. Gaunosine
- c. Inosine
- d. Queuosine
- e. Wyosine

starting the anticodon.

22. About bacterial RNA polymerase, which statement is the best ?

- a. Bacterial RNA polymerase holoenzyme has the composition $\alpha_2\beta\beta'\sigma$.
- b. Bacterial RNA core polymerase has the composition $\alpha_2\beta\beta'\sigma$.
- c. *rpoB* and *rpoC* encode subunits for the catalytic center.
- d. *rpoB* and *rpoC* encode subunits for enzyme assembly and promoter recognition.
- e. a and c are correct.
- f. a and d are correct.
- g. b and c are correct.
- h. b and d are correct.
- i. none of the above is correct.

23. Which statement about zinc finger protein is the best ?

- a. Steroid receptors have Cys-X₂₋₄-Cys-X₃-Phe-X₅-Leu-X₂-His-X₃-His zinc fingers.
- b. Steroid receptors have Cys-X₂-Cys-X₁₃-Cys-X₂-Cys zinc fingers.
- c. TF_{II}A protein has Cys-X₂₋₄-Cys-X₃-Phe-X₅-Leu-X₂-His-X₃-His zinc fingers.

- d. TF_{III}A finger protein has Cys-X₂-Cys-X₁₃-Cys-X₂-Cys zinc fingers.
 e. a and c are correct.
 f. a and d are correct.
 g. b and c are correct.
 h. b and d are correct.
24. In splicing reaction, the 5' site cleaved and lariat formed in the
 a. E
 b. A
 c. B1
 d. B2
 e. C1
 f. C2 complex.
25. The nucleosome gives a packing ratio of DNA to
 a. ~40
 b. ~4
 c. ~6
 d. ~1000
 e. ~100
 f. ~60
26. BrdU incorporation can cause a mutation
 a. from T-A to U-A
 b. from T-A to C-G
 c. from G-C to A-T
 d. from C-G to C-T
 e. from A-T to C-G
 f. from G-C to T-A
 g. none of the above.
27. Which statement is NOT correct ?
 a. Terminators are distinguished in *E. coli* according to whether RNA polymerase requires any additional factors to terminate *in vitro*.
 b. A core enzyme can terminate *in vitro* at certain sites in the absence of any other factor. These sites are called intrinsic terminators.
 c. Rho-dependent terminators are defined by the need for addition of rho factor (ρ) *in vitro*; and mutations show that the factor in termination *in vivo*.

- d. In Rho-dependent termination, a downstream U-rich region destabilizes the RNA-DNA hybrid when RNA polymerase pauses at the terminator.
- e. There are two types of terminators in *E. coli*.
- f. Rho factor unwinds DNA-RNA hybrid after Rho catches up RNA polymerase which pauses at terminator.

28. Which statement is the best ?

- a. Poor growth conditions cause bacteria to produce the small molecule regulators ppGpp and pppGpp. The production of ppGpp via pppGpp is the most common route, and ppGpp is the usual effector of the stringent response.
- b. Poor growth conditions cause bacteria to produce the small molecule regulators ppGpp and pppGpp. The production of pppGpp via ppGpp is the most common route, and pppGpp is the usual effector of the stringent response.
- c. The stringent factor RecA is a (p)ppGpp synthetase that is associated with ~5% of ribosome.
- d. The stringent factor RelA is a (p)ppGpp synthetase that is associated with ~5% of ribosome.
- e. Ribosomes obtained from stringent bacteria can synthesize ppGpp and pppGpp *in vitro*, provided that the A site is occupied by a charged tRNA specifically responding to the codon.
- f. Ribosomes obtained from stringent bacteria can synthesize ppGpp and pppGpp *in vitro*, provided that the A site is occupied by an uncharged tRNA specifically responding to the codon.
- g. a, c and e are correct.
- h. a, d and e are correct.
- i. b, c and e are correct.
- j. b, d and e are correct.
- k. a, c and f are correct.
- l. a, d and f are correct.
- m. b, c and f are correct.
- n. b, d and f are correct.
- o. none of the above is correct.

29. Regarding to splicing mechanics, which statement is the best ?

- a. U6-U4 pairing is compatible with U6-U2 pairing.
- b. U6-U4 pairing is incompatible with U6-U2 pairing.
- c. The E complex is converted to the A complex when U2 snRNP binds to the branch site.

- d. The B1 complex is converted to the B2 complex when U2 snRNP binds to the branch site.
- e. In B2 complex, U6 binds at 5' splice site.
- f. In B2 complex, U6 binds at 3' splice site.
- g. a, c and e are correct.
- h. a, d and e are correct.
- i. a, c and f are correct.
- j. a, d and f are correct.
- k. b, c and e are correct.
- l. b, d and e are correct.
- m. b, c and f are correct.
- n. b, d and f are correct.
- o. none of the above is correct.

30. Which statement is the best ?

- a. The ability of Gal4 to activate transcription is dependent of its specificity for binding DNA.
- b. The ability of Gal4 to activate transcription is independent of its specificity for binding DNA.
- c. The two hybrid technique tests the ability of two proteins to interact by covalent-bonding by incorporating them into hybrid proteins where one has a DNA-binding domain and the other has a transcription-activating domain.
- d. The two hybrid technique tests the ability of two proteins to interact by non-covalent-bonding by incorporating them into hybrid proteins where one has a DNA-binding domain and the other has a transcription-activating domain.
- e. The activating domain of the tat protein of HIV can stimulate transcription if it is tethered in the vicinity by binding to the RNA product of a previous round of transcription.
- f. The DNA-binding domain of the tat protein of HIV can stimulate transcription if it is tethered in the vicinity by binding to the DNA product of a previous round of replication.
- g. a, c and e are correct.
- h. a, d and e are correct.
- i. a, c and f are correct.
- j. a, d and f are correct.
- k. b, c and e are correct.
- l. b, d and e are correct.

- m. b, c and f are correct.
- n. b, d and f are correct.
- o. none of the above is correct.

31. In a small minority of mRNA capping cases in higher eukaryotes, in addition to the a methyl group added to the 7 position of the terminal guanine and another methyl group to the 2'-O position of the penultimate base (which was actually the original first base of the transcript before any modification were made), another methyl group is added to the N⁶ position of the second base which happens to be adenine. For this mRNA, it has the
- a. Cap 0
 - b. Cap 1
 - c. Cap 2
 - d. Cap 3
 - e. Cap 1'
 - f. Cap 2'
 - g. Cap3' type.
32. In characterizing transcription activator functions, VP16 protein is normally linked to a
- a. a DNA-binding motif
 - b. a activation domain
 - c. an acidic activator
 - d. a basic activator
33. Human genome sequenced at
- a. 1977
 - b. 1995
 - c. 2001
 - d. 2002
34. Homologous recombination between multiple copies of a transposon causes rearrangement of host DNA. Which statement is the best ?
- a. Reciprocal recombination between direct repeats excises the material between them; each product of recombination has one copy of the direct repeat.
 - b. Reciprocal recombination between inverted repeats excises the material between them; each product of recombination has one copy of the inverted

repeat.

- c. Reciprocal recombination between inverted repeats inverts the region between them.
- d. Reciprocal recombination between direct repeats inverts the region between them.
- e. a and c are correct.
- f. a and d are correct.
- g. b and c are correct.
- h. b and d are correct.

35. Separate eukaryotic DNA polymerases undertake initiation and elongation.

- a. A replication fork has 1 complex of DNA polymerase α /primase and 2 complexes of DNA polymerase δ and/or ϵ .
- b. A replication fork has 2 complex of DNA polymerase α /primase and 1 complexes of DNA polymerase δ and/or ϵ .
- c. The DNA polymerase α /primase complex initiates the synthesis of both DNA strands. DNA polymerase δ elongates the leading strand and a second DNA polymerase δ or DNA polymerase ϵ elongates the lagging strand.
- d. The DNA polymerase δ complex initiates the synthesis of both DNA strands. DNA polymerase α /primase elongates the leading strand and a second DNA polymerase α or DNA primase elongates the lagging strand.
- e. a and c are correct.
- f. a and d are correct.
- g. b and c are correct.
- h. b and d are correct.

36. Which treatment is not used for hypersensitivity site detection experiment ?

- a. Indirect end-labeling
- b. DNAase I cleavage
- c. Southern blot
- d. Micrococcal nuclease
- e. Restriction enzyme digestion.

37. Which general transcription factor can make a connection between transcription and DNA repair ?

- a. TAF_{II}230
- b. TF_{II} D
- c. TAF_{II}42

- d. TAF_{II}62
- e. TF_{II}F
- f. TAF_{II}150
- g. TF_{II}H
- h. TAF250

38. TR (Thyroid Receptor) and RAR (Retinoic Acid Receptor) bind to SMRT corepressor while they are
- a. binding with ligands
 - b. not binding with ligands
39. Which of the following receptors can form homodimer with its partner?
- a. RAR
 - b. VDR
 - c. ER
 - d. T3R
 - e. RXR
40. Which chemical allows EF-Tu to bind aa-tRNA to the A site, but the EF-Tu-GDP complex can not be released from the ribosome ?
- a. Kirromycin
 - b. Puromycin
 - c. Fusidic acid
 - d. GMP-PCP
 - e. Streptomycin

第二部份：41~60 題，每題一分。

41. Which statement is the best for RNA ?
- RNA sequence is complementary to coding strand and equivalent to template strand.
 - RNA sequence is noncomplementary to template strand and equivalent to coding strand.
 - RNA sequence is complementary to template strand and equivalent to coding strand.
 - RNA sequence is noncomplementary to coding strand and equivalent to template strand.
 - none of the above.
42. The general sigma factor for *E. coli* transcription is
- σ^E
 - σ^S
 - σ^{28}
 - σ^{32}
 - σ^{54}
 - σ^{70}
 - none of the above.
43. The lac operon belongs to
- A positive control of induction control circuit.
 - A negative control of induction control circuit.
 - A positive control of repression control circuit.
 - A negative control of repression control circuit.
44. Which statement is not correct ?
- The unit of DNA in which an individual act of replication occurs is called the replicon.
 - Replicons can be linear or circular.
 - Each replicon "fires" once and only once in each cell cycle.
 - Each eukaryotic chromosome contains one replicon.
45. Which statement is not correct about *E. coli* replication study?
- Inability to replicate DNA is fatal for a growing cell.
 - Mutants in replication must be obtained as conditional lethals.

- c. *dna* mutants are able to accomplish replication under nonpermissive conditions.
 d. The *dna* mutants distinguish two stages of replication by their quick-stop and slow-stop response on a temperature rise.
46. Which of the factor is required for DNA repair system ?
 a. CTD of PolII
 b. TF_{II}A
 c. TF_{II}H
 d. TF_{II}D
 e. SL1
 f. None of the above.
47. Formation of heterochromatin is initiated when
 a. Sir3
 b. H3
 c. Rap1
 d. Sir4 binds to DNA
48. UAS (upstream activator sequences) in yeast is an element analogous to enhancers, but it can not function
 a. in either orientation.
 b. at variable distance upstream of the promoter.
 c. when located downstream
 d. none of the above.
- of a gene.
49. The assembly of Pol II basal transcription machinery is acting in the order of the addition of
 a. TF_{II} D- TF_{II} B- TF_{II} A- TF_{II} F- TF_{II} E- TF_{II} H- TF_{II} J
 b. TF_{II} D- TF_{II} A- TF_{II} B- TF_{II} F- TF_{II} H- TF_{II} J- TF_{II} E
 c. TF_{II} D- TF_{II} A- TF_{II} B- TF_{II} F- TF_{II} E- TF_{II} H- TF_{II} J
 d. TF_{II} D- TF_{II} A-TBP- TF_{II} E- TF_{II} F-TAF230- TF_{II} H- TF_{II} J
 e. none of the above
50. Group II introns excise themselves from RNA by an
 a. extracatalytic
 b. nuclear
 c. trans
 d. autocatalytic

51. Cells that lack *TK* gene are added with *TK*⁺ DNA, which statement about this transfection experiment is the best ?
- All cells can take up *TK*⁺ gene added and become viable in absence of thymidine.
 - Some cells that lack *TK* gene can take up *TK*⁺ gene added and become viable in absence of thymidine.
 - A single viable colony must be derived from a single *TK*⁺ transfected cell.
 - A single viable colony can be a pile up from descendants of *TK*⁺ transfected cell.
 - a and c are correct.
 - a and d are correct.
 - b and c are correct.
 - b and d are correct.
 - none of the above is correct.
52. The Amber codon is
- UAG
 - UGA
 - GGG
 - UAA
 - UGG
53. Which sequence is palindromic ?
- CCCGNNNGGGC
 - CCCGNNNCCCG
 - TGTTCTNNNNAGAACA
 - TGTTCTNNNNTCTTGT
 - TGTTCTNNNNACAAGA
 - TGACCTNNNNNTGACCT
 - TGACCTNNNNNACTGGA
 - none of the above.
54. In the first stage of yeast in vitro splicing reaction, the cut at 5' site create the
- U 5'-2'C bond
 - G5'-2'A bond
 - G5'-2'C bond

- d. 5'-3' bond
in the intron.

55. For the study of mRNA, it relies on the synthesis of a complementary DNA stand (cDNA). Then the cDNA can be used as a template to synthesize a DNA strand that is

- a. complement
 - b. identical
- with the original mRNA sequences.

56. Which one will not bind or anchor to A site (on either 30S or 50S subunit)?

- a. RF1-RF3
- b. RF2-RF3
- c. Met-tRNA-eIF2-GTP
- d. GTP-EF-G
- e. GTP-eEF2

57. Which of the following does not have histone fold?

- a. H3
- b. H2A
- c. TAF_{II}42
- d. RAP74
- e. TAF_{II}62
- f. None of the above.

58. In bacteria, the use of fMet-tRNA_f is controlled by

- a. IF-1
 - b. IF-2
 - c. IF-3
 - d. EF-Tu
 - e. eIF2B
 - f. eIF-2
 - g. EF-Ts
 - h. none of the above
- and the ribosome.

59. Which statement is correct?

- a. Binding of U1snRNP to the 5' splice site is the first step in splicing.
- b. Binding of U2snRNP to the 5' splice site is the first step in splicing.

- c. Binding of U1snRNP to the 3' splice site is the first step in splicing.
- d. Binding of U2snRNP to the 3' splice site is the first step in splicing.

60. GC or CAAT boxes influences the
- a. amount
 - b. efficiency
 - c. quality
 - d. timing
 - e. spacing
 - f. specificity of transcription initiation.

