



BIOLOGY

BOOKS - TRUEMAN'S BIOLOGY

(ENGLISH)

NCERT Exemplar Questions +2

(MOLECULAR BASIS OF INHERITANCE)

Mcqs

1. In a DNA strand the nucleotides are linked together by

A. glycosidic bonds

B. phosphodiester bonds

C. peptide bonds

D. hydrogen bonds

Answer: b



Watch Video Solution

2. A nucleoside differs from a nucleotide. It lacks the

A. base

B. sugar

C. phosphate group

D. hydroxyl group

Answer: c



Watch Video Solution

3. Both deoxyribose and ribose belong to a class of sugars called

A. trioses

B. hexoses

C. pentoses

D. polysaccharides

Answer: c



Watch Video Solution

4. The fact that a purine base always paired through hydrogen bonds with a pyrimidine base leads to, in the DNA double helix

- A. the antiparallel nature
- B. the semiconservative nature
- C. uniform width throughout DNA
- D. uniform length in all DNA

Answer: c



Watch Video Solution

5. The net electric charge on DNA and histones is

- A. both positive
- B. both negative
- C. negative and positive, respectively
- D. zero

Answer: c



Watch Video Solution

6. The promoter site and the terminator site for transcription are located at

A. 3' (downstream) end and 5' (upstream) end, respectively of the transcription unit

B. 5' (upstream) end and 3' (downstream) end, respectively of the transcription unit

C. the 5' (upstream) end

D. the 3' (downstream) end

Answer: b



Watch Video Solution

7. Which of the following statements is the most appropriate for sickle cell anaemia

A. It cannot be treated with iron supplements

B. It is a molecular disease

C. It confers resistance to acquiring malaria

D. All of the above

Answer: d



Watch Video Solution

8. One of the following is true with respect to

AUG

A. It codes for methionine only

B. It is also an initiation codon

C. It codes for methionine in both prokaryotes and eukaryotes

D. All of the above

Answer: d



Watch Video Solution

9. The first genetic material could be

A. protein

B. carbohydrates

C. DNA

D. RNA

Answer: d



Watch Video Solution

10. With regard to mature mRNA in eukaryotes

A. exons and introns do not appear in the
mature RNA

B. exons and introns do not appear in the
mature RNA

C. Exons appear but introns do not appear
in the mature RNA

D. both exons and introns appear in the
mature RNA

Answer: b



Watch Video Solution

11. The human chromosomes with the highest and least number of genes in them are respectively :

A. chromosome 21 and Y

B. chromosome 1 and X

C. chromosome 1 and Y

D. chromosome X' and Y

Answer: c



Watch Video Solution

12. Who amongst the following scientists had no contribution in the development of the double helix model for the structure of DNA

A. Rosalind Franklin

B. Maurice Wilkins

C. Erwin Chargaff

D. Meselson & Stahl

Answer: d



Watch Video Solution

13. DNA is a polymer of nucleotides which are linked to each other by 3' – 5' phosphodiester bond . To prevent polymerisation of nucleotides, which of the following modifications would you choose ?

A. Replace purine with pyrimidines

B. Remove/Replace 3' OH group in deoxy ribose

C. Remove/Replace 2' OH group with some other group in deoxy ribose

D. Both ((b) and (c)

Answer: b



Watch Video Solution

14. Discontinuous synthesis of DNA occurs in one strand, because

A. DNA molecule being synthesised is very long

B. DNA dependent DNA polymerase

catalyses polymerisation only in one

direction (5' 3')

C. It is a more efficient process

D. DNA ligase has to have a role

Answer: b



Watch Video Solution

15. Which of the following steps in transcription is catalysed by RNA polymerase?

A. Initiation

B. Elongation

C. Termination

D. All of the above

Answer: b



Watch Video Solution

16. Control of gene experssion takes place at the level of

A. DNA-replication

B. Transcription

C. Translation

D. None of these

Answer: b



Watch Video Solution

17. Regulatory proteins are the accessory proteins that interact with RNA polymerase and affect its role in transcription. Which of the following statements is correct about regulatory protein ?

A. They only increase expression

B. They only decrease expression

C. They interact with RNA polymerase but do not affect the expression

D. They can act both as activators and as repressors

Answer: d



Watch Video Solution

18. Which was the last human chromosome to be completely sequenced ?

A. Chromosome 1

B. Chromosome 11

C. Chromosome 21

D. Chromosome x

Answer: a



Watch Video Solution

19. Which of the following are the functions of RNA

A. It is a carrier of genetic information from DNA to ribosomes synthesising polypep-

tides

B. It carries amino acids to ribosomes

C. It is a constituent component of ribosomes

D. All of the above

Answer: d



Watch Video Solution

20. While analysing the DNA of an organism a total number of 5386 nucleotides were found out of which the proportion of different bases were: Adenine=29 %, Guanine= 17%, Cytosine=32%, Thymine=17 %, Considering the Chargaff's rule it can be concluded that

- A. it is a double stranded circular DNA
- B. it is single stranded DNA
- C. it is a double stranded linear DNA
- D. no conclusion can be drawn

Answer: b



Watch Video Solution

21. In some viruses, DNA is synthesised by using RNA as template. Such a DNA is called :

A. A-DNA

B. B-DNA

C. c DNA

D. r DNA

Answer: c



Watch Video Solution

22. If Meselson and Stahl's experiment is continued for four generations in bacteria, the

ratio of $N^{15}/N^{15} : N^{15}/N^{14} : N^{14}/N^{14}$ containing DNA in the fourth generation would be

A. 1 : 1 : 0

B. 0.04444444444444444

C. 0 : 1 : 3

D. 0:1 :7

Answer: d



Watch Video Solution

23. If the sequence of nitrogen bases of the coding strand of DNA in a transcription unit is $5' - ATGAATG - 3'$, the sequence of bases in its RNA transcript would be

A. $5' - AUGA AUG - 3'$

B. 5' - U A C U U A C - 3'

C. 5' - C A U U C A U - 3'

D. 5' - G U A A G U A - 3'

Answer: a



Watch Video Solution

24. The RNA polymerase holoenzyme transcribes

- A. the promoter, structural gene and the terminator region
- B. the promoter, and the structural gene
- C. the structural gene and the terminator regions
- D. the structural gene only

Answer: c



Watch Video Solution

25. If the base sequence of a codon in mRNA is $5' - AUG - 3'$, the sequence of tRNA pairing with it must be

A. $5' - UAC - 3'$

B. $5' - CAU - 3'$

C. $5' - AUG - 3'$

D. $5' - GUA - 3'$

Answer: b



Watch Video Solution

26. The amino acid attaches to the tRNA at its

A. 5' - end

B. 3' - end

C. Anti codon site

D. DHU loop

Answer: b



Watch Video Solution

27. To initiate translation, the mRNA first binds to :

- A. the smaller ribosomal sub-unit
- B. the larger ribosomal sub-unit
- C. the whole ribosome
- D. no such specificity exists

Answer: a



Watch Video Solution

28. In *E. coli*, the lac operon gets switched on when

- A. Lactose is present and it binds to repressor
- B. Repressor binds to operator
- C. RNA polymerase binds to the operator
- D. Lactose is present and it binds to RNA polymerase

Answer: a



Watch Video Solution

