

Associate Degree Program/ BA-BSc/Part II Examination2020
Subject: Genetics II, Paper A.

Total marks: 35

All questions carry equal marks

1. What is the anticodon that recognizes CGA:

- a. UGC
- b. CGA
- c. GCU
- d. GCT

2. During transcription:

- a. nucleotides are polymerized by DNA polymerase
- b. initiation occurs at a site recognized by the sigma factor
- c. only single gene-sized mRNA molecules are synthesized
- d. both DNA strands of a single gene are used as templates simultaneously

3. The proof reading of newly synthesized DNA, to excise incorrect nucleotides which have been inserted, is done by:

- a. a restriction endonucleases
- b. DNA gyrase
- c. DNA ligase
- d. DNA polymerase III

4. Promoter regions are nucleotide sequences that:

- a. are involved in the initiation of transcription
- b. are involved in transcription termination
- c. contain the code for mRNA molecule
- d. are important to the translation process

5. The codon is found in :

- a. DNA
- b. rRNA
- c. tRNA
- d. mRNA

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8. Yeast can exist as...

- a. haploids
- b. triploids
- c. diploids
- d. both haploids and diploids

9. The central dogma for genes is:

- a. RNA → protein → DNA
- b. Protein → DNA → RNA
- c. DNA → RNA → Protein
- d. RNA → DNA → protein

10. Fungi are different from plants because

- a. they lack organelles
- b. they are unable to fix CO₂
- c. they rely on absorptive nutrition
- d. they are autotrophs

11. The majority of Fungal species

- a. require external water in order to digest their food
- b. get their nourishment from live organisms
- c. rely on dead matter for nourishment
- d. have likely not yet been identified

12. Which statement below is a “true” difference between RNA and DNA?

- a. Only DNA contains a sugar component.
- b. Only RNA contains thymine.
- c. Only DNA contains phosphate groups.
- d. Only DNA is double-stranded.

13. Hyphae are

- a. the filamentous growth structures of many fungi
- b. divided by septa in the Ascomycota and Basidiomycota
- c. divided by septa in the Oomycota
- d. surrounded by a cell wall
- e. absent in the slime molds

14. Fungi which reproduce only by asexual means, and produce conidia

- a. are unable to undergo mitosis
- b. are members of the Deuteromycota
- c. lack an anamorphic phase
- d. lack a telomorphic phase

15. What is a component of DNA?

- a. Phosphate group
- b. Deoxyribose
- c. Bases
- d. All of the above

- 16. Francis Griffith did experiments with *Streptococcus pneumoniae* and discovered:**
- transduction
 - transformation
 - conjugation
 - Translation
- 17. Asexual reproduction is important to fungal survival because**
- many spores are produced that can act as dispersal units
 - it often produces new genotypes through genetic recombination
 - it can occur rapidly and multiple times per growing season
 - it produces resistant resting spores such as zygospores and oospores
- 18. The doubling time of yeast is about...**
- 90 seconds
 - 9 hrs
 - 90 minutes
 - 9 days
- 19. Which is not a DNA characteristic?**
- Double helix
 - 10 base pairs per turn
 - Single stranded
 - Hydrogen bonds between bases
- 20. Which base does RNA not have?**
- Adenine
 - Cytosine
 - Gustine
 - Thymine
- 21. Which type of RNA includes the anticodon and brings the amino acids to the site of protein synthesis?**
- mRNA
 - rRNA
 - tRNA
 - DNA
- 22. Horizontal transfer can best be described as:**
- the transmission of genetic information from parent to offspring
 - the transmission of genetic information from one independent, mature organism to another
 - the synthesis of RNA from a DNA template
 - None of above

23. Plasmids can best be described as:

- a. small, circular DNA molecules that can exist independently of chromosomes commonly found in bacteria
- b. a complex membrane structure that covers the chromosome of bacteria
- c. another name for a chloroplast

24. The name of the process in which plasmids can be eliminated from a cell is:

- a. fixing
- b. breaking
- c. curing
- d. None of above

25. This type of plasmid can exist with or without being integrated into the host's chromosome

- a. Lysogen
- b. episome
- c. medosome
- d. None of above

26. F factor plasmids play a major role in what bacterial process?

- a. transduction
- b. replication
- c. conjugation
- d. None of above

27. This type of plasmid makes the host more pathogenic

- a. metabolic plasmid
- b. virulence plasmid
- c. F factor
- d. None of above

28. This type of plasmid carries genes encoding enzymes that degrade substances such as aromatic compounds, pesticides or sugar

- a. metabolic plasmid
- b. virulence plasmid
- c. F factors
- d. None of above

29. Mobile genetic elements that carry the genes required for integration into host chromosomes

- a. plasmids
- b. transposons
- c. replicon
- d. None of above

30. _____ structural component found in all viruses is:
- The envelope
 - DNA
 - Capsid
 - Tail fibers
31. _____ chemical component found in all viruses is:
- Protein
 - Lipid
 - DNA
 - Glycoproteins
32. **DNA Replication is the process in which ...**
- proteins are made
 - RNA is made from the DNA template
 - DNA makes a copy of itself
 - DNA is made from the RNA template
33. **Base sequence of DNA strand (A T G C C), what would be the base sequence of the complimentary DNA strand?**
- T A C G G
 - A T G C C
 - U A C G G
 - A U G C C
34. **What is the basic feature of prokaryotic cell?**
- Absence of cell wall
 - Absence of RNA
 - Absence of Nucleus
 - Absence of DNA
35. **Tetra type having two different genotypes is**
- parental ditype
 - non parental ditype
 - tetrad
 - none of above