

2 ½ HOURS

TOTAL MARKS: 75

1. Attempt all questions.
2. Draw neat labelled diagrams wherever necessary.
3. Use of log tables and non-programmable calculator is allowed.
4. For Q 2, Q 3 and Q 4 attempt A and B OR C and D.

Q1 Select the appropriate option for the following questions.**40**

1. Which of the following was a prediction of the Haberlandt experiment on plant cells?
 - a) Plant cells could not grow
 - b) Plant cells could not divide
 - c) The cultured plant cells could grow, divide and develop into embryos further in the whole plant.
 - d) Plant cells could behave like an animal cell.
2. A plant organ or piece of tissue used to initiate a culture is known as _____.
 - a) Organ
 - b) Tissue
 - c) Explant
 - d) Callus
3. _____ is used to wash the glassware and to prepare the media in the PTC laboratory.
 - a) Media preparation room
 - b) Dissection room
 - c) Sterilization room
 - d) Culture room
4. The glassware and some of the plasticware can be sterilized using _____.
 - a) An autoclave
 - b) A hot air oven
 - c) An incubator
 - d) Bacteria proof filter
5. The velocity of sterile air circulating through laminar air flow is _____.
 - a) 30 ± 3 m/min
 - b) 50 ± 3 m/min
 - c) 100 ± 3 m/min
 - d) 27 ± 3 m/min
6. Gelrite is isolated from _____.
 - a) *Gelidium* Spp
 - b) *Pseudomonas* Spp
 - c) *Staphylococcus* Spp
 - d) *Micrococcus* Spp
7. Energy metabolism in vivo occurs largely by _____.
 - a) ETC
 - b) Glycolysis
 - c) EMP pathway
 - d) Citric acid cycle
8. Which of the following is NOT a limitation of ATC?
 - a) in vitro Modeling
 - b) origin of cells
 - c) Quantity
 - d) Instability
9. _____ is used to check the osmolality of the ATC media.
 - a) Osmotic Monitor
 - b) Air pump
 - c) Conductivity meter
 - d) Osmometer
10. The variation in the optimum temperature can be within _____ °C.
 - a) ± 1 °C
 - b) ± 0.2 °C
 - c) ± 0.8 °C
 - d) ± 0.5 °C
11. _____ ions are responsible for regulating cell membrane potential.
 - a) Na^+ and K^+
 - b) Ca^{2+} and K^+
 - c) Na^+ and SO_4^{2-}
 - d) Ca^{2+} and Mg^{2+}
12. _____ can encourage poor aseptic technique.

- a) Organic supplements
b) Balanced salts
c) Antibiotics
d) Glucose
13. _____ protein is responsible for inhibiting the action of trypsin.
a) Fetuin
b) Transferrin
c) Albumin
d) Fibronectin
14. _____ is NOT an example of a biotechnological tool.
a) PCR
b) AGE
c) Gravimetric analysis
d) PAGE
15. _____ should allow a researcher to reproduce the results/data
a) Acknowledgements
b) Materials and methods
c) Introduction
d) Bibliography
16. _____ is quoting the work of other researchers.
a) Plagiarism
b) Acknowledgements
c) Referencing
d) Abstract
17. References are NOT cited in _____ part of a scientific research article.
a) Abstract
b) Introduction
c) Discussion
d) Materials and methods
18. An example of extra personal communication is _____.
a) Prayers
b) Meditation
c) Communication with animals
d) Cinema
19. _____ software can be used for a verbal presentation.
a) MS Word
b) MS Project
c) MS Excel
d) MS PowerPoint
20. _____ is an example of a Non-verbal communication.
a) Signature
b) Oral presentation
c) Noise
d) Cultural difference

Q. 2 A Describe in detail about the washing area and sterilization room as a part of PTC laboratory. 07

Q. 2 B What are micronutrients? Enlist them and mention their physiological role in PTC media preparation. 04

OR

Q. 2 C Define plant growth regulators. Explain about the organic supplements added in PTC media. 07

Q. 2 D Describe the growth pattern seen in case of plant cells when grown on a medium. 04

Q. 3 A Give a brief account of disadvantages of Serum media 07

Q. 3 B What is the role of Growth factors in an animal tissue culture media? 04

OR