5. What are the codes, guidelines and universal principle for the foundation of bioethics? 5+5=10

6. Write short notes on any two of the following: 5+5=10
   a. Completely Randomized Design (CRD)
   b. Randomized Block Design (RBD)
   c. Latin Square Design (LSD)

7. Write a note on the use of animals in context to ethical issues pertaining to laboratory practices? 10

8. Write short notes on any two:
   a. Indian patent Act and case studies 5+5=10
   b. IPR
   c. Farmer's right and plant breeder's right
   d. Trade Secret

= = *** = =

M. Sc. BIOTECHNOLOGY
SECOND SEMESTER
BIOSTASTISTICS, BIOETHICS & IPR
MBT - 204

(Use Separate Answer Scripts for Objective & Descriptive)

Duration : 3 hrs. **Full Marks : 70**

(PART-A : Objective)

Time : 20 min. **Marks : 20**

Choose the correct answer from the following: ***1×20=20***

1. Which of the following is one of the oldest conventions for protection of industrial property
   a. Strasbourg convention b. Budapest Treaty
   c. PCT d. Paris Convention

2. The Indian Patent Act 1970 allows the process patent for a maximum time of ……..years from the date of grant.
   a. 2 Years b. 10 Years
   c. 5 Years d. 15 Years

3. Which is the main component of international cooperation for intellectual property?
   a. TRIPs b. WHO
   c. WTO d. WIPO

4. When was WTO established
   a. 1991 b. 1995
   c. 1993 d. 1997

5. The GOI notified how many countries as the convention countries
   a. 125 b. 175
   c. 150 d. 200

6. In which of the following design, the number of treatments is equal to the number of replications?
   a. Completely Randomized Design b. Randomized Block Design
   c. Latin Square Design d. None of these.

7. Which of the following is true for Poisson distribution?
   a. Mean > Variance b. Mean < Variance
   c. Mean = Variance d. None

8. Organism's responsible or causing disease is known as……..
   a. Bacteria b. Pathogens
   c. Agents d. Microbe

9. The filters present in laminar flow are……filters
   a. HAPA b. HEPA
   c. HIPA d. HEPE

10. Test of independence of attributes is associated with
    a. Z test b. $\chi 2$ test
    c. t test d. F test.

11. Biosafety rules and regulations are designed to save
    a. Plant **b.** Individual and environment
    c. Animal **d.** None of the above

12. If A and B are two mutually exclusive then P(AUB) = _____
    a. 0 b. 1
    c. undetermined d. None

13. An identification symbol or distinctive word applied to a product is called
    a. Patent **b.** Copyrights
    c. Trademark **d.** Trade secrets

14. Which of the following is a unit less dispersion?
    a. Standard deviation b. Mean deviation
    c. Coefficient of variation d. Range

15. Which of the biological inventions is patentable?
    a. The products b. composition of products
    c. Biological process d. all of the above

16. A novel product discovered in an organism is
    a. Unpatentable b. Uninventable
    c. patentable d. inventable

17. Which office grants patent
    a. Registrar of Patents b. Controller of patents
    c. Attorney General d. High court

18. Extreme values have no effect on _____
    a AM b GM
    c HM d Median

19. A continuous variable may assume any value within a specified limits (True / False)
    a True b False

20 "The first ten natural number"
The above statement is statistical data
    a True b False

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Contd...

(PART-B : Descriptive)

Time : 2 hrs. 40 min. **Marks : 50**

[Answer question no.1 & any four (4) from the rest]

1 Mention some applications of t distribution. Two types of bacteria are tested for the length of life and the following data are obtained 10

	Sample size	Mean life	Variance
Type A	9	600 hours	124 hours^2
Type B	8	640 hours	144 hours^2

Is there a significant difference in the two means? [Given $t_{0.05}$ for 15 df = 2.131]

2. Why Standard deviation is considered to be the best measure of dispersion? 10
Find coefficient of variation from the following distribution.

Age under (years):	17	18	19	20	21	22	23
No. of students:	4	18	36	64	84	96	100

Or

Give an expression of probability density function of a normal variable with parameter μ and σ. Assume that height of a group of men is 64.25 inches with a standard deviation of 2.82 inches. How many a group of 400 men would you expect to be over 6 ft tall? [Given, $P(Z \leq 2.76)=0.997$]

3. What is GI? Why do GI need protection? What is the difference between GI and Trademark? Why Patent is so important. 4+2+2+2= 10

4. Define Bioethics and its historical importance? Mention the different paradigms of bioethics, Nationally and Internationally. 4+6=10