D 91756 (Pages : 3) Name.....

Reg. No.....

THIRD SEMESTER (CUCBCSS—UG) DEGREE EXAMINATION NOVEMBER 2020

Microbiology

MBG 3C 06—COMPUTER APPLICATIONS-FUNDAMENTALS

(2018 Admissions)

Time : Three Hours Maximum : 64 Marks

Part A

Answer **all** *questions.*
Each question carries ½ mark.

1. CPUS stands for ————.
2. DOS means ————.
3. Which of the following is a system software ?
   A) Linux. B) MS-Office.
   C) Multimedia application. D) None of the above.
4. Which of the following is an example of secondary storage devices ?
   A) Cache memory. B) Registers.
   C) CD-ROM. D) ROM.
5. Which is of the following not available in MS word ?
   A) Magic tool. B) Italic.
   C) Font. D) Bold.
6. Which of the following is an example of page orientation in Ms-Word ?
   A) A4. B) Landscape.
   C) Subscript. D) Preview.
7. What is the smallest and largest font size available in Font Size tool in MS Word formatting tool bar ?
   A) 12 and 72. B) 8 and 72.
   C) 8 and 64. D) None of the above.
8. Which of the following key combination is used to move cursor from page to page of the MS Word document ?
   A) Ctrl + Page Down. B) Ctrl + Page Up.
   C) Both A and B. D) None of these.

9. What is the name of the file created on MS Excel to manage data in tabular form by managing them into various cells ?

   A) Document. B) Spreadsheet.

   C) Workspace. D) Worksheet.

10. Which of the following MS Excel function is used to tell how many numeric entries are there ?

   A) NUM. B) COUNT.

   C) SUM. D) CHKNUM.

11. Slide sorter can be accessed from ———— menu of MS Powerpoint.

   A) Insert. B) File.

   C) Edit. D) View.

12. The spelling dialog box can be involved by choosing spelling from ———— menu.

   A) Insert. B) File.

   C) Tools. D) View.

(12 × ½ = 6 marks)

Part B

Answer **all** *questions.*
Each question carries 2 *marks.*

13. What is computer memory ?
14. List the name of any four output devices.
15. What is an operating system ? Give an example.
16. Distinguish between RAM and ROM.
17. How will you add row at the end of the table in MS Word document ?
18. How will you add footer notes in MS Word document ?
19. What is spreadsheet ?
20. What do you mean by cell references in MS Excel ?
21. What is PowerPoint ? Why is it used ?
22. How can you add new slide in a presentation ?

(10 × 2 = 20 marks)

Part C

Answer any **six** *questions.*
Each question carries 3 *marks.*

23. Explain the uses of multimedia system.
24. What is application software ? Give any two examples.

25. What are the different types of printers ? Explain.

26. Explain the techniques for find and replace of text in word document.

27. Write a short note on auto formatting in MS Word.

28. Explain how can you add cells, rows and columns in MS Excel.

29. Explain the different cell formatting options in MS Excel.

30. Explain the function of Auto content wizard in MS PowerPoint.

(6 × 3 = 18 marks)

Part D

Answer any **two** *questions.*
Each question carries 10 *marks.*

31. Explain the different components of a computer hardware with a neat sketch.

32. What is Mail Merge ? Explain the different process involved in Mail Merge with suitable example.

33. i) Explain sort and filter features in MS Excel.

    ii) Explain any five mathematical functions in MS Excel.

(2 × 10 = 20 marks)

D 91755 (Pages : 2) Name.....

Reg. No.....

THIRD SEMESTER (CUCBCSS—UG) DEGREE EXAMINATION NOVEMBER 2020

Microbiology

MBG 3C 03—FOOD AND INDUSTRIAL MICROBIOLOGY

(2018 Admissions)

Time : Three Hours Maximum : 64 Marks

Part A

Answer **all** *the questions.*
Each question carries ½ mark.

1. High pressure processing (HPP) of foods for preservation and sterilization is called ————.
2. Botulism is caused by ————.
3. Most widely used organism for the commercial production of citric acid is ————.
4. Name an organic acid used as preservative.
5. Brown milk is caused by ————.
6. The temperature and time duration for the LTH method of pasteurization is ————.
7. GRAS stands for ————.
8. Phosphorescence of meat and fish is caused by the genus ————.
9. Fermentation of solid substrates at low moist levels is known as ————.
10. A reactor in which the contents are stirred using an agitator during continous culture is ————.
11. Bakers yeast is ————.
12. The organism used for the industrial production of Vitamin B_{12} is ————.

(12 × ½ = 6 marks)

Part B

Answer **all** *the questions.*
Each question carries 2 marks.

13. Baffles.
14. Rope forming bacteria.
15. Benzoates.
16. Wood smoke as a preservative.

17. Putrefaction.
18. Cheese whey.
19. Fed batch cultures.
20. Precursors.
21. Food intoxication.
22. SCP.

(10 × 2 = 20 marks)

Part C

Answer any **six** *questions.*
Each question carries 3 *marks.*

23. List the various filtration techniques used in down stream processing.
24. Give an account on batch culture method of industrial fermentation.
25. Give an account on food preservation using low temperature.
26. Give a detailed account on the design of an industrial fermentor with a neat diagram.
27. List the various crude sources used as media for industrial fermentation.
28. Explain the industrial production of Bakers yeast.
29. Write notes on pigmented bacteria in foods
30. Discuss the bacterial spoilage of milk.

(6 × 3 = 18 marks)

Part D

Answer any **two** *questions.*
Each question carries 10 *marks.*

31. Give a detailed account on food preservation using high temperature.
32. Explain the pathogenesis and clinical features of botulism and salmonellosis.
33. Give an account on the crystallization and chromatographic procedures used in the product recovery.

(2 × 10 = 20 marks)

D 91754 (Pages : 3) Name.....

Reg. No.....

THIRD SEMESTER (CUCBCSS—UG) DEGREE EXAMINATION NOVEMBER 2020

Microbiology

MBY 3C 11—BIO STATISTICS–I

(2014 Admissions)

Time : Three Hours Maximum : 64 Marks

Use of calculator is permitted.

Part A

Answer **all** *questions.*
Each question carries ½ mark.

Fill in the blanks (Questions 1 - 4) :

1. Data scale where the order matters but not the difference between values called ———— scale.
2. The subset of a sample space is called ————.
3. A function of sample values is called a ————.
4. Most frequent item in a set of observations is called ————.

Choose the correct answer (Questions 5 - 8) :

5. Arithmetic mean of a set of 9 observations is 12. When an observation 4 is removed from this group the arithmetic mean of the new set of 8 observations is ————.

   (i) 10. (ii) 11.

   (iii) 12. (iv) 13.

6. If X follows binomial distribution with parameters 10 and 0.3, $P(X > 0)$ is ————.

   (i) 0.3^{10} (ii) $1 - 0.3^{10}$

   (iii) 0.7^{10} (iv) $1 - 0.7^{10}$

7. Mean of X following t-distribution with 6 d.f. is ————.

   (i) 0. (ii) 3.

   (iii) 6. (iv) 12.

8. If X follow normal distribution with mean 5, $P(X < 5)$ is ————.

   (i) 0. (ii) 0.25.

   (iii) 0.5. (iv) 1.

State true *or* false (Questions 9 - 12) :

9. AM of observations given in frequency table with open ended classes can be calculated.
10. Median and mode of a set of symmetric observation are same.
11. For binomial distribution mean is always greater than the variance.
12. Range of variation of F distribution is starting from 0.

(12 × ½ = 6 marks)

Part B (Short Answer Type Questions)

Answer **all** *questions.*
Each question carries 2 *marks.*

13. Differentiate qualitative and quantitative data.
14. Define population and sample.
15. Define cumulative frequency distribution.
16. Define central tendency.
17. 25% of the observations in a set are lying below 18 and another 25% of the observations are lying above 46. Find the quartile deviation of the set of observations.
18. Write the sample space of a random experiment of counting the number of boys in families having exactly 5 children.
19. If P(A) = 0.5 and P(B) = 0.6, obtain $P(A \cup B)$ when A and B are independent events.
20. If the probability mass function of X is $f(x) = {}^{12}C_x (0.4)^x (0.6)^{12-x}, x = 0,1,2,...,12,$ find the mean of X.
21. Define standard normal distribution.
22. Write the p.d.f. of F-distribution with (n, m) degrees of freedom.

(10 × 2 = 20 marks)

Part C (Short Essays)

Answer any **six** *questions.*
Each question carries 3 *marks.*

23. Draw a histogram for the following data :

Class	0-10	10-20	20-30	30-40	40-50
Frequency	3	5	9	6	2

24. Differentiate interval scale and ratio scale as measurement scales for data.

25. Calculate the mode of the following data :

Class	0-5	5-10	10-15	15-20	20-25
Frequency	6	11	18	10	5

26. Obtain mean deviation about mean of 10, 12, 25, 14, 18, 24 and 23.

27. The printing mistakes per 100 pages in books published by a good printing firm follows Poisson distribution with an average of 2. Obtain the probability of noting no printing mistakes in a book of 500 pages.

28. If X follows normal distribution with mean 10 and standard deviation 2, find

    (i) $P(X > 12)$

    (ii) $P(8 < X < 12)$.

29. Write any two applications of chi-square distribution.

30. Define *t*-distribution. Write any two of its properties.

(6 × 3 = 18 marks)

Part D (Essays)

Answer any **two** *questions.*
Each question carries 10 *marks.*

31. (i) Explain random sampling, (ii) Differentiate primary and secondary data, (iii) Explain the methods for collecting primary data, and (iv) Write any three sources of secondary data.

32. (i) If mean and variance of X following binomial distribution are 4 and 8/3. Find the values of the parameters n and p. Also find $P(X = 0)$

    (ii) Fit a Poisson distribution to the following data and hence find $P(X > 1)$:

x	0	1	2	3	4	5	6	7	8
f	8	14	12	6	4	3	2	1	0

33. (i) For two events A and B state and state : (a) Addition theorem and (b) Multiplication theorem on probability.

    (ii) State the mathematical definition of probability. A bag contains 10 red, 15 white and 8 blue balls. In a single draw of 3 balls, what is the probability of : (a) getting 2 white and 1 blue ball (b) getting balls of same colour ?

(2 × 10 = 20 marks)

D 91753 **(Pages : 2)** **Name**.....

Reg. No.....

THIRD SEMESTER (CUCBCSS—UG) DEGREE EXAMINATION NOVEMBER 2020

Microbiology

MBY 3C 05—APPLIED MICROBIOLOGY

(2014 Admissions)

Time : Three Hours Maximum : 64 Marks

Section A

Answer **all** *questions.*
Each question carries ½ mark.

1. Which bacterium is most commonly considered as indicating fecal pollution of water.
2. Role of micro-organisms in fermentation was discovered by ————————.
3. Vitamin B_{12} can be obtained as a by product of streptomycin production. (True/False)
4. ———————— is also called as bakers's yeast.
5. Alexander Fleming discovered penicillin from ————————.
6. Disinfection of water comes under secondary treatment. (True/False)
7. Pasteurization was originally suggested for milk. (True/False)
8. Cadaverine is produced by the decarboxylation of ————————.
9. A mixture of dark, colloidal organic compounds formed from the decay of litter relatively resistant to decomposition is called ————————.
10. ———————— is the term applied to the cells grown and harvested for animal or human food.
11. Micro-organisms not indigenous to a given ecosystem are called ————————.
12. Gel filtration chromatography works on the basis of ————————.

(12 × ½ = 6 marks)

Section B

Answer **all** *questions.*
Each question carries 2 *marks.*

Write briefly on :

13. Impaction.
14. MBRT.
15. R : S ratio.
16. Baffles.
17. Nif gene.
18. Symbiosis.
19. HACCP.
20. Eutrophication.
21. Antimicrobial property of UV radiation.
22. Alum.

(10 × 2 = 20 marks)

Section C

Answer any **six** *questions.*
Each question carries 3 *marks.*

Write notes on :

23. Sampling of air based on impingement.
24. Rhizosphere effect.
25. Carbon cycle.
26. Effect of salinity on aquatic microbes.
27. B.O.D.
28. Spoilage potential of bacteria.
29. Spoilage of meat.
30. Continuous culture.

(6 × 3 = 18 marks)

Section D

Answer any **two** *questions.*
Each question carries 10 *marks.*

31. Give an account of air borne diseases.
32. Discuss the role of microbes in nitrogen cycle.
33. Discuss the methods of food preservation.

(2 × 10 = 20 marks)

D 91715 (Pages : 2) Name.....

Reg. No.....

THIRD SEMESTER (CUCBCSS—UG) DEGREE EXAMINATION NOVEMBER 2020

Microbiology

MBG 3B 03—ENVIRONMENTAL AND SANITATION MICROBIOLOGY

(2018 Admissions)

Time : Three Hours Maximum : 80 Marks

Part A

Answer **all** *questions.*
Each question carries ½ mark.

1. The organisms living in salt condition are called ————————.
2. MPN detects the presence of ———————— group of bacteria in water.
3. BOD is measured in ———————— unit.
4. The solid part that settles after primary treatment is called ————————.
5. Name any *one* water born infections of humans.
6. Andersons sampler is used for ————————.
7. Name any *one* indicator microorganisms
8. Membrane filter method is used for checking the quality of ————————.
9. The organisms living under high pressure condition is called ————————.
10. The organisms floating on the surface of water bodies are called ————————.
11. Expand DO.
12. Trickling filter is used in which stage of sewage treatment ?

(12 × ½ = 6 marks)

Part B

Answer all *questions in one* **or** *two sentences.*
Each question carries 2 marks.

13. What is PCB ?
14. What is activated sludge ?

Turn over

15. Define Biomagnification.

16. What is Eutrophication ?

17. What is COD ?

18. What is droplet nuclei ?

19. What is sand filtration ?

20. What is the use of gravity slide ?

21. Land fills.

22. What is meant by microbial leaching ?

(10 × 2 = 20 marks)

Part C

Write short notes on any **six** *of the following.*
Each question carries 5 *marks.*

23. Write on airborne infections.

24. Design of biogas plant.

25. Novel pollutants.

26. PCB.

27. Presumptive test.

28. Microbial leaching.

29. Marine aquatic environment.

30. Water sources for drinking water.

(6 × 5 = 30 marks)

Part D

Answer any two questions.
Each question carries 12 *marks.*

31. Discuss different air sampling methods.

32. Bioremediation of xenobiotics.

33. Types of solid waste and their management.

D 91714 (Pages : 2) Name.....

Reg. No.....

THIRD SEMESTER (CUCBCSS—UG) DEGREE EXAMINATION NOVEMBER 2020

Microbiology

MBY 3B 04—ENVIRONMENTAL AND SANITATION MICROBIOLOGY

(2014 Admissions)

Time : Three Hours Maximum : 80 Marks

Section A

Answer **all** *questions.*
Each question carries ½ mark.

1. Fertility of ocean means ————.
2. Outer most layer of earth's atmosphere is called ————.
3. Anaerobic sludge digestion will produce ———— gas which can be used as a fuel.
4. Most Probable Number method is used to ————.
5. Barophilic organisms normally live in deep sea because they require ————.
6. Write the expansion of'HEPA' filter.
7. Settle plate method is used for ————.
8. Ozonation is a method of ———— during water purification.
9. Buffer zone between warmest and coolest layer of a deep lake is called ————.
10. Red tide is due to the accumulation of Cyanobacterium ————.
11. Define droplet nuclei.
12. Upwelling means ————.

(12 × ½ = 6 marks)

Section B

Answer **all** *questions.*
Each question carries 2 marks.

13. What is meant by Bio aerosols ?
14. Comment on Estuary.
15. Define Microbial Consortia.

16. Define COD.
17. What is meant by Persistent organic pollutants ?
18. What is meant by residual chlorine ?
19. Define biomagnification.
20. Differentiate between Literal and limnetic zone of aquatic systems.
21. Comment on phytoplankton of aquatic environment.
22. Define Eutrophication.

(10 × 2 = 20 marks)

Section C

Write short note on any **six** *of the following.*
Each question carries 5 *marks.*

23. Briefly discuss the air sampling methods.
24. What is meant by bioremediation ? Discuss with a suitable example.
25. Discuss briefly about the sources of microorganisms in air.
26. Discuss briefly the role of microorganisms in corrosion of metals. List the methods of prevention of metal corrosion.
27. What is meant by activated sludge system? Briefly discuss the process.
28. Pulmonary anthrax is an airborne infection. Discuss.
29. Discuss the Primary treatments of waste water before its disposal.
30. Briefly discuss the reasons due to which an organic chemical becomes recalcitrant..

(6 × 5 = 30 marks)

Section D

Answer any **two** *of the following questions.*
Each question carries 12 *marks.*

31. What is meant by indicator organisms ? Why they are important for water quality analysis? Discuss the important characters that have to be present to accept one as an indicator organism
32. Discuss the influence of various physical factors on the growth and distribution of .microorganisms in aquatic environment.
33. Discuss briefly about various methods of municipal solid waste management.

(2 × 12 = 24 marks)

D 92964 (Pages : 2) Name.....

Reg. No.....

THIRD SEMESTER (CBCSS—UG) DEGREE EXAMINATION
NOVEMBER 2020

Microbiology

MBG 3C 06—COMPUTER APPLICATIONS–FUNDAMENTALS

Time : Two Hours Maximum : 60 Marks

Section A (Short Answers)

Answer at least **eight** *questions.*
Each question carries 3 *marks.*
All questions can be attended.
Overall Ceiling 24.

1. Comment on MS-DOS.
2. What is Multimedia ?
3. List out any *two* high level languages.
4. What are Registers ?
5. How will you create a work book ?
6. Write the use of graphs in worksheets.
7. How can we perform spellcheck in slides ?
8. Write the steps for replacing a text in a word document.
9. What are time functions ?
10. Define cell in a worksheet.
11. How can we add pictures in slides ?
12. What is the use of function wizard ?

(8 × 3 = 24 marks)

Section B (Paragraph)

Answer at least **five** *questions.*
Each question carries 5 *marks.*
All questions can be attended.
Overall Ceiling 25.

13. Write a note on smart and intelligent terminal.
14. Discuss about the relevance of mail merging.
15. How will you format a worksheet ? Explain in detail.
16. Write a note on character and paragraph design.
17. What are secondary storage devices. Explain in detail.
18. Discuss few mathematical, statistical and logical functions in spreadsheet.
19. How can we add and format text on slides ?

(5 × 5 = 25 marks)

Section C (Essay)

Answer any **one** *question.*
The question carries 11 *marks.*

20. Discuss different types of printers in detail.
21. Explain about templates and effects on slides.

(1 × 11 = 11 marks)

D 92963 (Pages : 2) Name.....

Reg. No.....

THIRD SEMESTER (CBCSS—UG) DEGREE EXAMINATION
NOVEMBER 2020

Microbiology

MBG 3C 03—FOOD AND INDUSTRIAL MICROBIOLOGY

Time : Two Hours Maximum : 60 Marks

Section A

Answer atleast **eight** *questions.*
Each question carries 3 *marks.*
All questions can be attended.
Overall Ceiling 24.

1. Water activity.
2. Redox potential.
3. Cold sterilization.
4. Food additives.
5. Putrefaction.
6. Radicidation.
7. Campylobacteriosis.
8. Antifoam agents.
9. Airlift fermentor.
10. Turbidostat.
11. Batch Culture
12. Cyanocobalamine.

(8 × 3 = 24 marks)

Section B

Answer atleast **five** *questions.*
Each question carries 5 *marks.*
All questions can be attended.
Overall Ceiling 25.

13. Briefly discuss food-borne fungi with appropriate examples.
14. Critically discuss food intoxication.

Turn over

15. Discuss the major microorganisms involved in the spoilage of fish and meat.

16. Elaborate the microbial transformations of sterols and steroids.

17. Inspect the major steps involved in the industrial production of Vitamin B-12.

18. Explain the major downstream process involved in the purification of microbial end products.

19. What do you mean by SCP ? Examine the nutritional aspects and major types of SCPs with suitable example.

(5 × 5 = 25 marks)

Section C

Answer any **one** *question.*
The question carries 11 *marks.*

20. Investigate the major steps involved in the industrial production of Penicllin G.

21. Elaborate the types of radiation, characteristic features and legal status of radiation preservation.

(1 × 11 = 11 marks)

D 92962 (Pages : 2) Name.....

Reg. No.....

THIRD SEMESTER (CBCSS—UG) DEGREE EXAMINATION NOVEMBER 2020

Microbiology

MBG 3B 03—ENVIRONMENTAL AND SANITATION Microbiology

Time : Two Hours and a Half Maximum : 80 Marks

Wherever needed answers must be supported by structural illustration and diagrams.

Section A (Short Answer Type Questions)

Answer at least **ten** *questions.*
Each question carries 3 *marks.*
All questions can be attended.
Overall Ceiling 30.

1. Droplet nuclei.
2. Gravity slide.
3. Impingers.
4. Air-borne viral infections.
5. Estuarine.
6. Single dwelling water supply.
7. Eutrophication.
8. Indicator organisms.
9. Types of solid wastes.
10. Anaerobic digester.
11. Methanogenesis.
12. Biomagnification.
13. Recalcitrant.
14. *Pseudomonas putida.*
15. Bioleaching.

(10 × 3 = 30 marks)

Turn over

Section B (Short Essay Type Questions)

Answer at least **five** *questions.*
Each question carries 6 *marks.*
All questions can be attended.
Overall Ceiling 30.

16 Briefly discuss the major organisms present in the air.

17 Elaborate the major harmful micro-organisms and air-borne infections.

18 Investigate the major factors influencing the growth and distribution of micro-organisms in aquatic ecosystems.

19 Elucidate the major steps involved in the purification of municipal water.

20 Discuss the principles, methodology and applications of vermi-composting.

21 Illustrate the production of biogas.

22 Examine the mechanisms of the biodegradation of PCBs.

23 Discuss the major step involved in the microbial leaching with appropriate examples.

(5 × 6 = 30 marks)

Section C (Essay Type Questions)

Answer any **two** *questions.*
Each question carries 10 *marks.*

24 Investigate the methods and devices used for the microbiological quality of air.

25 Elaborate the major steps involved in the treatment of waste water.

26 Discuss the major types of waterborne diseases and their transmission.

27 Critically discuss the construction of superbugs for the bioremediation of oil spills.

(2 × 10 = 20 marks)