D 12038

Name...

Reg. No...................................

THIRD SEMESTER (CBCSS–UG) DEGREE EXAMINATION NOVEMBER 2021

Microbiology

MBG 3C 06—COMPUTER APPLICATIONS—FUNDAMENTALS

(2019—2020 Admissions)

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. Write the use of Joystick.

2. What is Animation ?

3. What is free domain software ?

4. Write the role of ALU.

5. How will you open an existing word document ?

6. Write the steps for printing documents.

7. What is the use of tab in word processing ?

8. Write any two mathematical functions in spreadsheet.

9. How will you save a presentation ?

10. What is clipart ?

11. What is conditional formatting ?

12. Define System Software.

(8 × 3 = 24 marks)

Section B

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

13. Discuss about the use of computer output microfilm.

14. Write a note on input devices. Explain in detail.

15. Compare and contrast system software and application software.

Turn over

16. How will you handle graphics in word processing ?

17. Write a note on text functions in Excel.

18. Write the different types of view in presentation.

19. How will you draw the objects in a slide ?

(5 × 5 = 25 marks)

Section C

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

20. Define Multimedia. Write the applications of multimedia in education, entertainment and marketing.

21. What is mail merging ? Explain in detail.

(1 × 11 = 11 marks)

THIRD SEMESTER (CBCSS—UG) DEGREE EXAMINATION NOVEMBER 2021

Microbiology

MBG 3C 03—FOOD AND INDUSTRIAL MICROBIOLOGY

(2019—2020 Admissions)

Time : Two Hours Maximum : 60 Marks

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

Section A (Short Answer Type Questions)

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

1. Oxidation reduction potential.

2. Water activity.

3. Food borne mold.

4. Pasteurization.

5. Putrefaction.

6. Food intoxication.

7. Enteric fever.

8. Propylene oxide.

9. Impeller.

10. Chemostat.

11. Synchronous culture.

12. Baker's yeast.

(8 × 3 = 24 marks)

Section B (Short Essay Type Questions)

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

13. Substantiate " food as a substrate for microorganisms".

14. What do you mean by food additives ? Elaborate the characteristics required for deal chemical preservatives with examples.

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

16. Elaborate the major steps involved in the industrial production of citric acid.

17. Elaborate the microbial transformations of sterols and steroids.

18. Critically discuss the nutritional quality, microorganisms and major concerns of SCP.

19. Discuss the major downstream process involved in the purification of microbial end products.

(5 × 5 = 25 marks)

Section C (Essay Type Questions)

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

20. Discuss the high and low temperature preservation with suitable examples.

21. Investigate the major steps involved in the industrial production of Penicillin.

(1 × 11 = 11 marks)

D 12036

Name...

Reg. No...................................

THIRD SEMESTER (CBCSS–UG) DEGREE EXAMINATION, NOVEMBER 2021

Microbiology

MBG 3B 03—ENVIRONMENTAL AND SANITATION MICROBIOLOGY

(2019—2020 Admissions)

Time : Two Hours and a Half   Maximum : 80 Marks

Section A

Answer atleast **ten** *questions.*
Each question carries 3 marks.
All questions can be attended.
Overall ceiling 30.

1. Aerosol.

2. Anderson sampler.

3. Impingers.

4. Air-borne bacterial infections.

5. Limnetic zone.

6. Municipal water supply.

7. Eutrophication.

8. Coliforms.

9. BOD.

10. Composting.

11. Methanogenesis.

12. Petroleum hydrocarbons.

13. Recalcitrant.

14. Composition of biogas.

15. Copper leaching.

(10 × 3 = 30 marks)

Turn over

Section B

16. Briefly discuss the major layers present in aquatic ecosystems.

17. Summarize the advantages and disadvantages of major air sampling devices.

18. Briefly discuss the principles and methodology involved in MPN techniques.

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

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

21. Elaborate the design and management of biogas plant.

22. Examine the relevance of bio-magnifications in xenobiotic metabolism.

23. Discuss the major principles and approaches involved in the bioremediation of oil.

(5 × 6 = 30 marks)

Section C

24. What are indicator micro-organisms ? Briefly discuss the major approaches used to study the microbiological quality of water.

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

26. Examine the mechanisms of the biodegradation of xenobiotic compounds with suitable examples.

27. Critically discuss the utility and application of anaerobic sludge digester and vermi-composting in solid waste management.

(2 × 10 = 20 marks)

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Name.......................................

Reg. No.................................

THIRD SEMESTER (CUCBCSS—UG) DEGREE EXAMINATION NOVEMBER 2021

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. RAM stands for ————.

2. MICR means ————.

3. Which of the following is an input device ?

    (a) Inkjet printer.

    (b) Multimedia projector.

    (c) Barcode Reader.

    (d) None of the above.

4. I KB means ———— bytes.

    (a) 1000 bytes.

    (b) 2000 bytes.

    (c) 8 bytes.

    (d) 1024 bytes.

5. What is the blinking symbol on the screen that shows where the next character will appear in MS-Word document ?

    (a) Delete Key.

    (b) Enter Key.

    (c) Cursor.

    (d) Arrow key.

6. Microsoft word is ———— software.

    (a) System.

    (b) Application.

    (c) Compiler.

    (d) Programming.

Turn over

7. What does Ctrl + = key effect in MS Word ?

    (a)   Superscript.   (b)   Shadow.

    (c)   All Caps.   (d)   Subscript.

8. In Which view Header and Footer are visible in MS Word ?

    (a)   Normal View.   (b)   Page Layout View.

    (c)   Print Layout View.   (d)   Draft View.

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)   Worksheet.   (d)   Workspace.

10. What is the default row height of MS Excel ?

    (a)   15.   (b)   13.

    (c)   12.   (d)   10.

11. A file which contains readymade styles that can be used for a presentation is called :

    (a)   Auto style.   (b)   Wizard.

    (c)   Template.   (d)   Pre formatting.

12. ———— is the short cut key to insert new slide in the current presentation.

    (a)   CTRL + O.   (b)   CTRL + M.

    (c)   CTRL + F.   (d)   CTRL + N.

(12 × ½ = 6 marks)

Part B

Answer **all** *questions.*

Each question carries 2 marks.

13. Define the term computer.

14. List any four input devices.

15. What is Linux ? Give its features.

16. Explain the need of secondary storage devices.

17. What is mail merge ?

18. How will you insert page break in MS Word document ?

19. What do you mean by work book in MS Excel ?

20. What is cell in MS Excel ?

21. What is a slide sorter view ?

22. How will you insert a picture in MS PowerPoint slide ?

(10 × 2 = 20 marks)

Part C

Answer any six questions.
Each question carries 3 marks.

23. What is compiler ? Explain its purpose.

24. Differentiate between DOS and Windows operating systems.

25. Explain the use of high level programming languages ? Give any *two* examples.

26. What are the different font styles in MS Word ? Explain.

27. Write a short note on different text formatting options in MS Word.

28. What is pivoting in MS Excel ? Explain with an example.

29. What is Freeze Panes in MS-Excel ?

30. Write a short note slide transition and animation.

(6 × 3 = 18 marks)

Part D

Answer any two questions.
Each question carries 10 marks.

31. What is computer software ? Explain the different category of software with examples. Also describe the relationship between hardware and software.

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

33. Write a note on the following :

(A) Date and time functions in MS Excel.

(B) Chart and Graphs in MS Excel.

(2 × 10 = 20 marks)

THIRD SEMESTER (CUCBCSS—UG) DEGREE EXAMINATION NOVEMBER 2021

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. The temperature and time duration for the ultrapasteurization process for milk is ——————.

2. Spargers are —————— .

3. —————— is known as father of canning.

4. Give an example for food intoxication

5. —————— is a byproduct of sugar industry that is used as a carbon source in fermentation media.

6. Give an example for algae used as SCP.

7. The temperature in cellar storage is lower than

8. Surface slime in meat can be caused by ——————.

9. Red milk is caused by species of ——————.

10. Agitators are used to ——————.

11. Name an organic acid used as preservative.

12. Mold used for Penicillin production is ——————.

(12 × ½ = 6 marks)

Part B

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

13. Antifoam agents.

14. Corn steep liquor.

Turn over

15. Bacterial ropiness in milk.

16. Water activity.

17. Precursors.

18. Baffles.

19. Salmonellosis.

20. Fluidised bed reactors.

21. Psychrotrophic bacteria.

22. Putrefaction.

$(10 \times 2 = 20$ marks)

Part C

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

23. Explain the microbial production of Vitamin B_{12}.

24. List the general types of spoilage of meats.

25. Explain the different cell disruption methods used in down stream processes.

26. Explain the factors that affect the growth and survival of micro-organisms in food.

27. Explain the production of Bakers yeast.

28. Explain the pathogenesis and clinical features of botulism.

29. Give an account on the different sources of microbial contamination of foods.

30. Give an account on the molds and yeasts important in microbiology.

$(6 \times 3 = 18$ marks)

Part D

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

31. Explain the industrial production of citric acid.

32. Discuss the physical and chemical methods of food preservation.

33. Give a detailed account on the production, nutritive value and uses of SCP.

$(2 \times 10 = 20$ marks)

THIRD SEMESTER (CUCBCSS—UG) DEGREE EXAMINATION NOVEMBER 2021

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. Expand 'HEPA' filter.

2. Name any *two* indicator micro organisms.

3. The main component gas in biogas is ———————.

4. Trickling filter is used in which stage of sewage treatment ?

5. Name an example for water born infection.

6. Expand MPN.

7. Halophiles are organisms growing in ——————— conditions.

8. The unit of BOD is ———————.

9. The presence of *E.coli* in water indicates that the water is ———————.

10. Andersen's sampler is used for ———————.

11. Expand PCB

12. Psuedomonas putida is an organism which degrade ———————.

(12 × ½ = 6 marks)

Part B

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

13. What is droplet nuclei ?

14. Define COD.   **Turn over**

15. What are xenobiotics?

16. What is meant by eutrophication ?

17. What is primary sludge ?

18. What is DO ?

19. Define biomagnifications ?

20. What is Rotorod sampler ?

21. What is aeration pond ?

22. What is meant by activated sludge ?

(10 × 2 = 20 marks)

Part C

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

23. Air borne infections.

24. Distribution of microbes in aquatic environment.

25. Secondary sewage treatment methods.

26. Design of a biogas plant.

27. MPN method.

28. Microbial leaching.

29. Novel pollutants.

30. Indicator micro-organisms and their significance.

(6 × 5 = 30 marks)

Part D

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

31. Write on municipal drinking water purification methods.

32. Write on types of solid waste and their management.

33. Write briefly on any *two* water born infections.

(2 × 12 = 24 marks)

THIRD SEMESTER (CUCBCSS–UG) DEGREE EXAMINATION NOVEMBER 2021

Microbiology

MBY 3C 11—BIO-STATISTICS – I

(2014–2017 Admissions)

Time : Three Hours   Maximum : 64 Marks

Use of Calculator is permitted.

Part A

*Answer **all** questions in one word.*
Each question carries ½ mark.

Fill in the blanks (Questions 1 – 4) :

1. The graph obtained by joining the upper mid-points of the bars in a histogram using straight lines is known as ——————.

2. The difference between lower and upper quartiles is called ——————.

3. The set of all outcomes of a random experiment is called ——————.

4. Mean of a random variable following t-istribution with 5 d.f. is ——————.

Choose the correct answer (Questions 5 – 8) :

5. The x-co-ordinate of the meeting points of less than and greater than ogives is —————— of the data.

     (i)   mean.   (ii)   median.

     (iii)   mode.   (iv)   geometric mean.

6. Which of the following is a measure of dispersion ?

     (i)   A.M.   (ii)   G.M.

     (iii)   H.M.   (iv)   Range.

7. If $P(A \cup B) = 0.7$, $P\left(A^c \cap B^c\right) =$ ——————.

     (i)   0.7.   (ii)   0.3.

     (iii)   0.49.   (iv)   0.09.

Turn over

8. The mean of a Poisson distribution with parameter 6 is —————.

    (i)   6.   (ii)   12.

    (iii)   36.   (iv)   3.

State True *or* False (Questions 9 – 12) :

9. Histogram is a diagrammatic representation of data.

10. Mean deviation about mean is a measure of central tendency.

11. If A and B are two mutually exclusive events, then P (A ∩ B) = 0.

12. Normal distribution is a discrete probability distribution.

$$(12 \times \tfrac{1}{2} = 6 \text{ marks})$$

Part B (Short Answer Type Questions)

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

13. Name the different types of measurement scales of data.

14. Define primary and secondary data.

15. Obtain the geometric mean of 4 and 16.

16. Define quartiles and quartile deviation.

17. Three unbiased coins are tossed. What is the sample space ? What is the probability of at least one of the coin to show a head ?

18. Mean of a random variable X following Bernoulli distribution is 0.4. Find V (X).

19. A hospital receives on average 2 patients per minute. Using Poisson distribution, find the probability that there is no patient in a one minute interval.

20. A box contains 5 white, 6 blue and 9 red identical balls. Two balls are taken at random. Find the probability of getting (i) two white balls ; (ii) one red and one blue ball.

21. Define Chi-square distribution.

22. Write any two uses of *t*-distribution.

$$(10 \times 2 = 20 \text{ marks})$$

Part C (Short Essays)

Answer any six questions.
Each one carries 3 marks.

23. Distinguish between continuous and discrete data. Site examples.

24. What are the advantages of sampling over census ?

25. Calculate the harmonic mean :

Class	0-10	10-20	20-30	30-40	40-50
Frequency	5	8	12	3	2

26. Two unbiased dice are thrown. Obtain the probabilities of the sum of the numbers shown is (i) greater than 9 ; (ii) less than 4.

27. The probability of a person to win test A is 0.4, the probability to win both the tests A and B is 0.3 and the probability to win at least one of the test is 0.6. Find the probability of this person to win the test B.

28. X is the total number of patients survived from viral infection within one week out of 100 patients observed. If the probability of a patient to survive from viral infection within one week is noted as 0.72, obtain the mean and standard deviation of X.

29. The weight of newborn babies in a village follow normal distribution with mean 3.2 kgs and S.D. 0.5 kgs. Out of 100 births in that village, how many babies are expected with weight more than 4 kgs.? Given $P(Z > 1.6) = 0.0548$.

30. Write the p.d.f. and any two uses of F-distribution.

(6 × 3 = 18 ma

Part D (Essays)

Answer any two questions.
Each question carries 10 marks.

31. (i) Define frequency distribution, (ii) What are grouped and ungrouped frequency distributions ? (iii) Explain the steps to convert row data to grouped frequency distribution, (iv) Also explain any two graphical methods for representing grouped frequency distribution.

Turn over

32. (i) Define Dispersion, (ii) What are the various measures of dispersion ? (iii) Obtain the quartile deviation for the following data :

Class	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	5	9	20	31	3	11	6

33. (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

(2 × 10 = 20 marks)

THIRD SEMESTER (CUCBCSS—UG) DEGREE EXAMINATION NOVEMBER 2021

Microbiology

MBY 3C 05—APPLIED MICROBIOLOGY

(2014—2017 Admissions)

Time : Three Hours Maximum : 80 Marks

Draw diagrams wherever necessary.

Section A

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

1. The cofactors present in the dinitrogenase are ———————.

2. Name a predatory bacteria.

3. Salmonellosis is an example for food intoxication. (True/False)

4. The common strain used for the production of Vitamin B_{12} is ———————.

5. Bacterial spoilage commonly occurs to foods having $a_w < 9.0$. (True/False)

6. The method of chlorination used to disinfect water with resistant organisms is ———————.

7. The working principle of Reuter air sampler is based on impingement. (True/False)

8. The enlarged cells of *Rhizobia* found in actively nitrogen fixing nodules of legumes are ———————.

9. Negative interaction within a microbial population is called ———————.

10. Allochthonous organisms are totally foreign to the particular habitat. (True/False).

11. Q-fever is caused by ———————.

12. The primary function of xenospores in the environment is ———————.

(12 × ½ = 6 marks)

Turn over

Section B

Answer all questions.
Each question carries 2 marks.

13. Chemostat.

14. Sparger.

15. Piezophiles.

16. Water activity (a_w).

17. Indicator organism.

18. Leghaemoglobin.

19. Anderson air sampler.

20. Symbiosis.

21. HEPA filters.

22. Droplet nuclei.

(10 × 2 = 20 marks)

Section C

Answer any six questions.
Each question carries 5 marks.

Write short notes on :

23. Sources and factors influencing air microflora.

24. Rhizosphere effect.

25. Symbiotic nitrogen fixation.

26. Disinfection of drinking water.

27. Determination of BOD.

28. Spoilage of fish.

29. Cell disruption techniques for downstream processing.

30. SCP.

(6 × 5 = 30 marks)

Section D

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

31. Describe the microbiological techniques used for the quantitative and qualitative analysis of water.

32. Discuss the etiology, symptoms and control of following airborne infections :

    a) Tuberculosis ; b) Diphtheria ; and c) Whooping cough.

33. Discuss the production strains, production media and processes involved in penicillin production.

(2 × 12 = 24 marks)

THIRD SEMESTER (CUCBCSS—UG) DEGREE EXAMINATION NOVEMBER 2021

Microbiology

MBY 3B 04—ENVIRONMENTAL AND SANITATION MICROBIOLOGY

(2014—2017 Admissions)

Time : Three Hours   Maximum : 80 Marks

Section A

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

1. Cholera is an example of ——————— borne infections.

2. Define Photic zone of an aquatic ecosystem.

3. Name the inner most layer of earth's atmosphere.

4. Dust carrying viable pathogenic microorganisms are called ——————— .

5. Define thermoduric microorganisms.

6. EMB agar is used to differentiate ——————— from other gram negative bacteria.

7. Removing toxic residues of chemical from soil or water using microorganisms are called.........

8. Define Estuary.

9. Define upwelling.

10. Expand HEPA filter.

11. What is the recommended method of disposal of solid waste from a microbiology diagnostic laboratory ?

12. Define COD.

(12 × ½ = 6 marks)

Section B

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

13. What is meant by methanogens ?

14. Define oligotrophic system. Give example.

15. Comment on anaerobic sludge digesters.

16. Define indicator micro-organisms

17. Comment on oil spills.

18. What is meant by algal blooms ?

19. Comment on *Pseudomonas putida*.

20. Comment on polychlorinated biphenyls.

21. Comment on septic tank system.

22. Define Sewerage.

(10 × 2 = 20 marks)

Section C

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

23. Briefly discuss the sources of microorganisms in the air.

24. What is meant corrosion ? Discuss the role of microorganisms with example in corrosion.

25. Discuss briefly about secondary treatment of waste water.

26. Discuss airborne infection with a suitable example.

27. What are the reasons of indoor air pollution ? Discuss the strategies that can maintain indoor air quality.

28. Discuss the factors influencing microbial growth in aquatic environment ? Outline the role of microorganisms as producers and decomposers of marine ecosystem.

29. Discuss the various steps involved in water purification for public distribution.

30. Briefly discuss the biochemical pathways of biodegradation of aromatic hydrocarbons.

(6 × 5 = 30 marks)

Section D

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

31. What is the significance of air sampling ? Discuss the principle, methods and devices of air sampling. Give note on the advantages and disadvantages of each device.

32. What are the different classes of municipal solid waste ? Discuss the strategies and methods of solid waste management.

33. What is meant by persistence of Xenobiotics in environment ? What are the characters that make a chemical persistent ? Discuss the phenomenon of biomagnifications with suitable example.

(2 × 12 = 24 marks)