**MAHATMA GANDHI UNIVERSITY**

**MGU-UGP (HONOURS)**

**THIRD SEMESTER**

**Discipline Specific Core Course (DSC) – MG3DSCMBG 201 – MICROBIAL GENETICS**

(2024 ADMISSION ONWARDS)

Duration: 1.5 Hours Maximum marks: 50

***Remember(K), Understand(U), Apply(A), Analyse(An), Evaluate(E), Create(C), Skill(S), Interest(I)and Appreciation(Ap)***

Students should attempt at least one question from each course outcome to enhance their overall

Outcome attainability.

**PART A**

**Short Answer type questions, Answer any 10**

**Each question carries 2 marks**

**1. How does an episome differ from other plasmids in bacteria?[U] / [CO1]**

**2.Differentiate between the leading strand and the lagging strand in**

**DNA replication[U] / [CO1]**

**3.What are F+ cells [K] / [CO2]**

**4. What do you mean by T-even phages? [K] / [CO2]**

**5.Give an account ofthe Ecoli chromosome[U] / [CO1]**

**6.What is the Pribnow box, and where is it located in prokaryotic DNA [K] / [CO2]**

**7.What is an aporepressor[K] / [CO2]**

**8.Differentiate between auxotrophs and prototrophs[U] / [CO3]**

**9. What are competent cells in bacteria, and why are they important in genetic transformation? [U] / [CO2]**

**10.What is photo-reactivation repair? [K] / [CO3]**

**11.What is induction in the control of gene expression in prokaryotes [K]/ [CO2]**

**12.What is a Col plasmid? State its function. [K] / [CO1]**

**PART B**

**Short Essay questions, Answer any 4**

**Each question carries 5 marks.**

**13. How did Harshey and Chase prove that DNA is the genetic material?[U]/[CO1]**
**14. Explain the cut-and-paste mechanism of transposition[U]/ [CO1]**
**15. Illustrate and explain Translation in prokaryotes.[A]/CO2]**
**16. What are the steps involved in transcription [U] / [CO 2]**
**17. Explain the Lac operon in detail.[U]/ [CO2]**
**18. Explain the principle and significance of the Ames test in detecting mutagenic compounds.[U] / [CO3]**

**Part C**

**Long Essay Question. Answer any 1 question**

**Each question carries 10 marks**

**19. Analyse how different horizontal gene transfer mechanisms contribute to the transmission of drug resistance in bacteria [An]/ [CO2]**

**20. Write an essay on DNA repair mechanisms.[An]/ [CO3]**

**MGU-UGP BSc (HONS) MICROBIOLOGY**

**III SEMESTER**

**DSC A - MG3DSCMBG200- GENERAL MICROBIOLOGY**

**(2024 ONWARDS)**

**Time: 1.5 Hours** **Max. marks: 50**

***Remember(K), Understand(U), Apply(A), Analyse(An), Evaluate(E), Create(C), Skill(S), Interest(I) and Appreciation(Ap)***

Students should attempt at least one question from each course outcome to enhance their overall outcome attainability.

**Part A**

**Short Answer Type Questions**

**Answer any 10 questions.**

**Each question carries 2 marks.**

1. What is numerical taxonomy? [K][1]
2. Explain phylogenetic classification. [U][1]
3. What are fimbriae and pili? [K][1]
4. Write down the structure of Gram-positive flagella. [U][1]
5. Explain the chromophore and auxochromegroups.[U][2]
6. Write down the advantages of negative staining. [U][2]
7. List the objectives of fixation. [K][2]
8. Discuss about Mcintosh jar. [U][2]
9. Define sterilisation. [K][3]
10. What is cold sterilisation? [K][3]
11. Classify antibiotics based on mode of action. [U][3]
12. Explain thermal death time. [U][3]

**(10x2=20)**

**Part B**

**Short Essay Questions**

**Answer any 4 questions.**

**Each question carries 5 marks.**

13. SummariseBergey's Manual of Systematic Bacteriology. [U][1]
14. List the features of a good disinfectant. [K][3]
15. Compare the features of Gram-positive and negative cell walls. [U][1]
16. Describe anaerobic culture methods. [U][2]
17. Summarise the process of sporulation. [U][1]
18. Explain the principle of the autoclave. [A][3]

**(4x5=20)**

**Part C**

**Long Essay Question**

**Answer any 1question**

**Each question carries 10 marks**

19. Draw and explain the structure of gram Gram-negative cell wall with a neat diagram. [U][1]
20. Explain applications and uses of moist heat sterilisation. [A][3]

**(10x1=10)**

**MGU-UGP BSc (HONS) MICROBIOLOGY**

**III SEMESTER**

**DSC B - MG3DSCMBG202–TECHNIQUES INMICROBIOLOGY**

**(2024 ONWARDS)**

**Time: 1.5 Hours** **Max. marks: 50**

***Remember(K), Understand(U), Apply(A), Analyse(An), Evaluate(E), Create(C), Skill(S), Interest(I) and Appreciation(Ap)***

Students should attempt at least one question from each course outcome to enhance their overall outcome attainability.

**Part A**

**Short Answer Type Questions**

**Answer any 10 questions.**

**Each question carries 2 marks.**

1. Define sterilisation. [K][1]
2. Write down the application of HEPA filters in microbiology. [U][1]
3. How are thermolabile substances sterilised? [K][1]
4. Explain the mechanism of action of ethylene oxide in sterilisation. [U][1]
5. Name two sources of agar. [K][2]
6. Explain the role of transport media in a microbiology laboratory. [U][2]
7. Discuss enriched media with examples. [U][2]
8. List the different methods used for the isolation of microorganisms. [K][3]
9. What is Cryopreservation? [K][3]
10. Explain negative staining with an example.[U][4]
11. What is Numerical Aperture? [K][4]
12. Distinguish between SEM and TEM?[U][4]

**(10x2=20)**

**Part B**

**Short Essay Questions**

**Answer any 4 questions.**

**Each question carries 5 marks**

13. Compare the role ofionisingand non-ionisingradiation in sterilisation.? [U][1]
14. Explain briefly about pasteurisation and its types. [U][1]
15. Give a detailed account of anaerobic culture media. [U][2]
16. Write a note on the maintenance &preservation of pure culture. [K][3]
17. Explain the pour plate method for separating and counting bacterial isolates in a water sample. [A][3]
18. Describe the principle and procedure of Gram staining. [K][4]

**(4x5=20)**

**Part C**

**Long Essay Question**

**Answer any 1question.**

**Each question carries 10 marks.**

19. Describe the general safety rules to be followed in a microbiology laboratory. [U][1]

20. Explain the principle and working of the fluorescent microscope and phase contrast microscope with a suitable diagram. [A][4]

**(10x1=10)**

**MAHATMA GANDHI UNIVERSITY, KOTTAYAM**

MGU-UGP (HONOURS)

THIRD SEMESTER EXAMINATION, OCTOBER 2025

(2024 ADMISSION ONWARDS)

**MG3DSCMBG203 – FoodborneDiseases, Food Sanitation and Food Safety**

Duration: 1.5Hrs Maximum Marks: 50

***Remember(K), Understand(U), Apply(A), Analyse(An), Evaluate(E), Create(C), Skill(S), Interest(I) and Appreciation(Ap)***

Students should attempt at least one question from each course outcome to enhance their overall outcome attainability.

**Part A**

Multiple Choice Questions

Answer all questions

Each question carries **1** mark

1. Which of the following is NOT a physical hazard in the food industry? [1] [U]
   a) Bacteria b) Metal pieces c) Plastic pieces d) Hair
2. Which of the following is a naturally occurring chemical hazard in food? [1] [U]
   a) Monosodium glutamate b) Emulsifiers c) Aflatoxins d) Antioxidants
3. Heavy metals like lead and mercury in food are examples of: [1] [U]
   a) Biological hazards b) Physical hazards c) Chemical hazards d) Nutritional additives
4. Which bacterium causes foodborne intoxication through pre-formed neurotoxins, often linked to improperly canned foods? [2] [U]
   a) *Staphylococcus aureus*b) *Clostridium botulinum* c) *Bacillus cereus* d) *Escherichia coli*
5. Which protozoan parasite is responsible for amoebic dysentery from contaminated food or water? [2][U]
   a) *Giardia lamblia* b) *Entamoebahistolytica*

c) *Cryptosporidium parvum* d) *Cyclosporacayetanensis*

6. What is considered a physical sanitiser in food processing? [3][U]

a) Quaternary ammonium compounds b) Steam at high temperatures

c) Peroxyacetic acid d) Chlorine-based sanitiser

7. Identify which of these is not typically part of QC responsibilities? [4] [A]

a) Microbiological testing of products

b) Product inspection and defect detection

c) Auditing production processes to prevent future issues

d) Chemical and physical analyses of raw and final products

8. Identify the activated sludge process, commonly used to treat wastewater in food processing plants. [4] [A]

a) Anaerobic sludge blanket b) Biological aerobic suspended-growth

c) Trickling filter attached-growth, d) Chemical coagulation process

9. What does HACCP stand for? [4] [U]

a) Hazard Analysis and Control of Critical Packaging

b) Hazard Analysis Critical Control Point

c) Health Analysis Critical Control Protocol

d) Hazard Analysis of Control Critical Point

10. AGMARK certification is primarily associated with: [4] [U]

a) Packaged foods and fast-food outlets

b) Agricultural produce quality and grading

c) Meat processing standards

d) International ISO certification

(1×10=10)

**Part B**

Fill-in-the-blank questions

Answer all questions

Each question carries **1** mark

11. The most common cause of acute foodborne viral gastroenteritis worldwide is _____. [1] [U]

12. Cholera is caused by the bacterium _____. [2] [U]

13. CIP stands for Clean_____ , a method of cleaning interior surfaces of pipes, tanks, and equipment without disassembly. [3] [U]

14. QC involves conducting microbiological, chemical, and _____ tests on finished products. [4] [U]

15. GMP stands for Good ____ Practices, covering hygiene, equipment maintenance, personnel training, and sanitation. [4] [U]

(1×5=5)

**Part C**

True or false questions

Answer all questions

Each question carries **1** mark

16. Norovirus is the leading cause of foodborne illness worldwide. [2] [U]

17. Only bacteria, but not viruses or parasites, cause foodborne illnesses. [2] [U]

18. Apply clinical knowledge to the management of salmonellosis [3] [A]

19. FSSAI is the statutory authority that sets science-based food safety and quality standards in India. [4] [A]
20. Quality Control (QC) teams within food processing units are responsible for verifying that finished products meet regulatory and internal safety standards. [4] [U]

(1×5=5)

**Part D**

One-word answer
questions.Answer all questions

Each question carries **1** mark

21. Which hazard type includes pesticides, cleaning agents, and natural toxins? [1] [U]

22. What type of toxin produced by *Staphylococcus aureus*causes rapid-onset vomiting? [2] [U]

23. Which virus causes liver inflammation via faecal–oral transmission? [2] [U]

24. What virus is the most common cause of foodborne viral gastroenteritis globally? [2] [U]

25. What is bacillary dysentery? [1] [U]

26. What is an autoclave? [3] [U]

27. Expand COP and CIP. [3] [U]

28. Identify two chemical sanitisers that often target and destroy pathogens. [3] [A]

29. Why is sanitation important in pest control? [3] [U]

30. What is the core function of FSSAI? [3] [U]

31. What is the main function of AGMARK? [3] [U]

32. What is a CCP in the HACCP system? [3] [U]

(1×10=10)

**Part E**

Short answer questions

Answer any 4 questions

Each question carries 3 marks

33. Explain the three types of hazards found in the food industry [1] [U]

34. What are the symptoms of Botulism? [2] [U]

35. Comment on salmonellosis. [2] [U]

36. Explain the steps for preventing foodborne outbreaks. [2] [U]

37. Examine the role of AGMARK in ensuring the quality of agricultural commodities in India [3] [U]

38. Identify the importance of food safety symbols on packaging. [3] [A]

(3×4=12)

## Part F

Long answer questions

Answer any 1 question

Each question carries 8 marks

39. Sketch the mechanisms and management of two major foodborne intoxications: *Staphylococcus aureus* food intoxication and Botulism [1] [A]

40. Explain the seven principles of HACCP and how they support a preventive approach to food safety. [4] [U]

(1×8=8)

**QPCODE** **Reg.No : .....**

**Name : .....**

**MAHATMA GANDHI UNIVERSITY, KOTTAYAM**

**MGU-UGP (HONOURS) EXAMINATION**

**THIRD SEMESTER**

**COURSE CODE - MG3DSEMBG200**

**COURSE TITLE: BIOINSTRUMENTATION AND TECHNIQUES**

(2024 ADMISSION ONWARDS)

**Duration: 2 Hours** **Maximum Marks: 70**

***Remember(K), Understand(U), Apply(A), Analyse(An), Evaluate(E), Create(C), Skill(S), Interest(I) and Appreciation(Ap)***

Students should attempt at least one question from each course outcome to enhance their overall outcome attainability.

**Part A**

Very Short Answer Questions

Answer all questions

Each question carries **1** mark.

1. Which part of the microscope is modified to achieve dark-field illumination? [K]/ [CO1]
2. What parameter determines the sedimentation rate in differential centrifugation?[U]/[CO2]
3. Expand PAGE. [K]/[CO3]
4. Name the law on which colourimetry is based. [K]/[CO4]
5. What type of primers are used in PCR? [U]/[CO5]

**[1x5 = 5]**

**Part B**

Short Answer Questions

Answer any **10** questions.

Each question carries **2** marks.

6. Give any two applications of fluorescence microscopy in microbiology. [A]/[CO1]
7. Define differential centrifugation. [K]/[CO2]
8. What is the function of agarose in AGE? [U]/[CO3]
9. Define spectrophotometry. [K]/[CO4]
10. Give two advantages of nested PCR. [A]/[CO5]
11. Why are fluorescent dyes important for confocal microscopy? [A]/[CO1]

12. What is zonal centrifugation? How is it different from isopycnic centrifugation? [An]/[CO2]
13. What is the function of the blocking step in Western blotting? [U]/[CO3]
14. Write the mathematical expression of Beer-Lambert's Law. [K]/[CO4]
15. How does RFLP differentiate between bacterial strains? [U]/[CO5]
16. Why is phase contrast microscopy useful for observing live cells? [U]/[CO1]
17. What is the first step in two-dimensional electrophoresis? [K]/[CO3]

**[2x10 = 20]**

## Part C

Short Essay Questions

Answer any **5** questions

Each question carries **6** marks.

18. Explain the principle of resolution in microscopy. How does numerical aperture (NA) influence it? [A]/[CO1]
19. Explain the applications of density gradient centrifugation in molecular biology and virology. [U]/[CO2]
20. Define SDS-PAGE and explain its working principle. [U]/[CO3]
21. Explain how turbidometry can be used to measure microbial growth in broth culture [U/[CO4]
22. Briefly describe the basic steps of RAPD analysis. [A/[CO5]
23. Describe the basic working principle of SEM. [A]/[CO1]
24. Why is DNA fingerprinting useful in paternity testing? [A]/[CO5]

**[6x5 = 30]**

## Part D

Long Essay Questions

Answer any **1** question.

The question carries **15** marks.

25. Explain the working principle of TEM with a simple diagram. [An]/[CO1]
26. A researcher wants to compare soil bacterial communities. Justify why RAPD would be appropriate. [E]/[CO5]

**[15x1 = 15]**

**MGU-UGP BSc (HONS) MICROBIOLOGY**

**III SEMESTER**

**DSE- MG3DSEMBG201– EXTREMOPHILES,GEO & ASTROMICROBIOLOGY**

**(2024 ONWARDS)**

***Remember(K), Understand(U), Apply(A), Analyse(An), Evaluate(E), Create(C), Skill(S), Interest(I) and Appreciation(Ap)***

Students should attempt at least one question from each course outcome to enhance their overall attainment of the outcomes.

**Time: 2 Hours** **Max. marks: 70**

**Part A**
**Very Short Answer Questions**
**Answer all questions**
**Each question carries 1 mark.**

1. Define extremophiles. [K][1]
2. Write down permafrost. [U][1]
3. Explain bioleaching. [U][2]
4. Explain onemedical application of extremophiles. [A][4]
5. Point outany one effect of space on microbes.[An][3] (1x5=5)

**Part B**
**Short Answer Questions**
**Answer any 10 questions**
**Each question carries 2 marks.**

6. Distinguish thermophiles and psychrophiles. [U][1]
7. Give two examples of microbes that solubilise phosphate. [U][2]
8. What are methanogens?[K][1]
9. Write down any two ways that microorganisms contribute to soil formation. [U][2]
10. Distinguish bioleaching and biomining. [U][2]
11. Write down any two adaptations of microorganisms in the polar environment. [U][1]
12. List the main goal of the Chandrayan mission. [An][3]
13. Explain the role of *Acidothiobacillusferroxidans* in bioleaching.[U][2]
14. Point out any two challenges in detecting life beyond Earth. [An][3]
15. Explain the advantages of using extremophiles in bioremediation.[A][4]
16. Write down any two enzymes produced by extremophiles. [U][4]
17. How do acidophiles help in detoxifying heavy metals? [U][4] ( 2x10=20)

**Part C**
**Short Essay Questions**
**Answer any 5 questions**
**Each question carries 6 marks**

18. Describe biocorrosion and give examples of microbes causing it. [K][2]
19. Explain the role of extremophiles in the carbon cycle. [U][2]

20. Classify extremophiles based on the environment they inhabit. [U][1]
21. Explain exomicrobiology and its relevance in space missions.[A][3]
22. List a brief account of instruments for life detection in space.[An][3]
23. Explain the role of extremophiles in biopharmaceuticals. [A][4]
24. Write down the structure of the cell wall of methanogens. [U][1]

(6x5=30)

## Part D

## Long Essay Questions

**Answer any 1 question**

**Each question carries 15 marks**

25. Summarisethe adaptations of extremophiles that allow them to survive in extreme conditions. [U][1]
26. Explain the role of extremophiles inthe Sulphur cyclewith the help of a diagram. [U][4]

(15x1=15)

**QPCODE** **Reg.No : .....**

**Name : .....**

**MAHATMA GANDHI UNIVERSITY, KOTTAYAM**

**MGU-UGP (HONOURS) EXAMINATION**

**THIRD SEMESTER**

**COURSE CODE - MG3DSEMBG202**

**COURSE TITLE: BIODIVERSITY AND HUMAN WELL-BEING**

(2024 ADMISSION ONWARDS)

**Duration: 2 Hours** **Maximum Marks: 70**

***Remember(K), Understand(U), Apply(A), Analyse(An), Evaluate(E), Create(C), Skill(S), Interest(I) and Appreciation(Ap)***

Students should attempt at least one question from each course outcome to enhance their overall outcome attainability.

**Part A**

Very Short Answer Questions

Answer all questions

Each question carries **1** mark.

1. Define Biodiversity (K) ( CO1)

2.Explain the Global level of Biodiversity (U) ( CO1)

3. Outline endangered species. (U) (CO2)

4. Explainthe Poaching of wildlife (U) (CO3)

5. Define Bioaccumulation (K) (CO4)

**[1x5 = 5]**

**Part B**

Short Answer Questions

Answer any **10** questions

Each question carries **2** marks.

6.What are the different types of biodiversity (K) ( CO1)

7.Explain the consumptive use of biodiversity (U) ( CO1)

8.Which is the biodiversity hotspot in India (K) ( CO2)

9.Identify the major threats to Biodiversity (A) (CO3)

10.Explain ex-situ conservation of biodiversity. (U) (CO3)

11. Outline man-wildlife conflict. (U) (CO3)

12.Illustrate the main aim of IUCN (U) (CO2)

13.What is the Red list (K) ( CO2)

14.Explain the role of Biodiversity in health (U) (CO4)

15. Identify the role of biodiversity in fresh water (A) (CO4)

16.Determine biodiversity and infectious diseases (A) (CO4)

17.Mention the National Park (K)(CO2)

**[2x10 = 20]**

**Part C**

Short Essay Questions

Answer any **5** questions.

Each question carries **6** marks.

18.What is Biodiversity, and how is it important? (K)(CO1)

19.Classify Biodiversity value (U)(CO1)

20.List the Biogeographic zones of India (K)(CO2)

21. Compare endemic & endangered species. (U)(CO2)

22. Determine in situ and ex-situ conservation of biodiversity. (A)(CO3)

23. Relate biodiversity to food security (U)(CO4)

24. How does climate change affect biodiversity (K)(CO4)

**[6x5 = 30]**

**Part D**

Long Essay Questions

Answer any **1** question.

Each question carries **15** marks.

25.Determine the role of biodiversity in infectious diseases (A)(CO4)

26.What are biodiversity hotspots in India? Mention in detail about endemic and endangered species(K)(CO2)

**[15x1 = 15]**

**MGU-UGP BSc (HONS) MICROBIOLOGY**

**III SEMESTER**

**MDC -MG3MDCMBG200 - PUBLIC HEALTH AND EMERGING MICROBIAL DISEASE (2024 ONWARDS)**

**Time: 1.5Hours** **Max. marks: 50**

***Remember(K), Understand(U), Apply(A), Analyse(An), Evaluate(E), Create(C), Skill(S), Interest(I) and Appreciation(Ap)***

Students should attempt at least one question from each course outcome to enhance their overall outcome attainability.

**Part A**

**Short Answer Type Questions**

**Answer any 10 questions**

**Each question carries 2 marks**

1. Define health? [R][1]
2. What is Disease ? [U][1]
3. What is pollution ? [R][1]
4. Define radiation with example? [U][1]
5. Name any two food borne diseases? [R][2]
6. Name any two organisms that cause food borne diseases [R][2]
7. What is Sanitation [U][2]
8. Name any two organisms that cause water borne diseases [U][2]
9. Name microbial indicator of air pollution. [R][3]
10. Name two virus which cause respiratory infections? [R][3]
11. Name two Bacteria which cause respiratory infections? [R][3]
12. Define vectors [R][3]

**(10x2=20)**

**Part B**

**Short Essay Questions**

**Answer any 4 questions**

**Each question carries 5 marks**

13. Summarize water pollution? [U][1]
14. Illustrate food-borne infections. [R][2]
15. Describewater borne viral infections. [R][2]
16. Describe the sources of microbial air pollution. [U][3]
17. Summarize the respiratory infections. [U][3]
18. Explain the vector-borne diseases and control measures? [R][3]

**(4x5=20)**

**Part C**

**Long Essay Question**

**Answer any 1 questions**

**Each question carries 10 marks**

19. Explain about water pollution and it's sanitation[U][2]
20. Explain about airborne diseases [U][3]

**(10x1=10)**

**MAHATMA GANDHI UNIVERSITY**
**MGU-UGP(HONOURS) REGULAR EXAMINATION**
**THIRD SEMESTER**
**VALUE ADDED COURSE(VAC)- MG3VACMBG200 - MICROBIAL PRODUCTS**

**Duration:1.5 hours** **Maximum Marks: 50**

Remember(K),Understand (U),Apply(A), Analyse(An),Evaluate(E), Skills(S), Interest(I) and Appreciation(Ap)

## PART A

Short Answer Type Questions
Answer any **10** questions

Each question carries **2** marks

1. Describe the steps involved in Kefir production.(K)/(CO1)
2. Name any two fruit vinegars.(K)/(CO1)
3. Describesweeteners used in the food industry.(K)/(CO1)
4. Explain any two applications of protease.(U)/( CO1)
5. List the major organisms used and their role in mango wine production. (K)/ (CO1)
6. Explain koji in Soy sauce production.(K)/ (CO1)
7. Name any 2 bacteria in the normal flora of skin.(K)/ (CO2)
8. Define synbiotics.(K) (CO2)
9. Explaincosmeceuticals with 2 examples.(U)(CO2)
10. List any 2 skin probiotics.(K)/(CO2)
11. List the demerits of using microbes as a protein source in human food.(K)/(CO3)
12. Write any 2 health benefits of eggs.(K) /(CO3)

**(2X10=20)**

## PART B

Short Essay Questions
Answer any **4**questions

Each question carries **5** marks

13.Write any 2 enzymes used in the food industry and their application.(K)/ (CO1)

14.Mention the production and nutritional profile of yoghurt.(K)/ (CO1)

15.Explain the role of stabilisers in the food industry.(U)/( CO1)

16.Describe the new advancements with microbes in cosmetics and skin care products.(K)/(CO2)

17.Explain prebiotics. Identify any 3 health benefits.(U)/(CO2)

18.What is SCP?Compare the advantages and disadvantages of SCP over animal proteins.(An)/(CO3)

**(5X4=20)**

## PART C

Long Essay Questions

Answer any **1**question

Each question carries **10** marks

19.Write the production and health benefits of ant two fermented vegetables.(K)/(CO1)

20.Explain probiotics and their advantages.Outline the major challenges for probiotic formulation.(U)/ (CO2)

**(1X10=10)**

# MAHATMA GANDHI UNIVERSITY, KOTTAYAM

MGU-UGP (HONOURS)

THIRD SEMESTER EXAMINATION, OCTOBER 2025

(2024 ADMISSION ONWARDS)

## MG3VACMBG201 – Sensory Evaluation of Foods

Duration: 1.5 Hrs Maximum Marks: 50

***Remember(K), Understand(U), Apply(A), Analyse(An), Evaluate(E), Create(C), Skill(S), Interest(I) and Appreciation(Ap)***

Students should attempt at least one question from each course outcome to enhance their overall outcome attainability.

**Part A**

Multiple Choice Questions

Answer all questions

Each question carries **1** mark

1. Which of the following is NOT an appearance factor? [1] [U]
   a) Colour b) Aroma c) Wholeness d) Shape
2. Name the qualities of food that we can sense using our sense organs. [1] [U]
   a) Nutritional factors b) Chemical factors
   c) Energy factors d) Organoleptic factors
3. The number of members ideally present in a semi-trained panel is_____ [2][U]
   a) 5 to 10 b) 90 to 100 c) 25 to 30 d) 50 to 60
4. Which of the following is a key component of panel training? [2] [U]
   a) Performing chemical analysis of samples
   b) Learning to cook the samples being evaluated
   c) Educating panellists in sensory vocabulary and response expression
   d) Understanding food marketing trends
5. What type of lighting is recommended for accurate visual evaluation of food samples? [2] [U]
   a) Yellow lighting
   b) Blue LED lighting
   c) White fluorescent light
   d) Bright red lighting only
6. Why is good ventilation essential in a sensory evaluation room? [2][U]

a) To avoid the buildup of food odours that can affect judgment

b)To prevent panellists from getting tired

c) To circulate the smell of the sample quickly

d)To cool the room quickly

7. What is the primary purpose of the reception and briefing room in a sensory evaluation facility? [2] [U]

   a) For sample preparation and storage

   b) As a break room for staff

   c) To entertain the panellists after the test

   d) To welcome and orient panel members before testing

8. Threshold tests are used to determine [3] [U]

   a) Preference level b) Minimum detectable concentration

   c) Emotional response d) Product shelf-life

9. Select the test that measures consumer liking from the following.[4] [A]

   a) Threshold test b) Texture profile analysis

   c) Hedonic scale, d) Scalar difference test

10. Choose the professional who evaluates coffee aroma and taste systematically. [5] [A]

    a) Seller b) Barista c) Coffee cupper d) Brewer

(1×10=10)

**Part B**

Fill-in-the-blank questions

Answer all questions

Each question carries **1** mark

11. A _____ panel consists of ordinary consumers. [2] [U]

12. _____ scaling involves assigning a product to one of several predefined categories. [3] [A]

13. _____ refers to how food feels in the mouth. [1] [U]

14. The _____ test is used to screen whether panelists can identify minor differences in samples. [5] [U]

15. A _____ is an expert in evaluating wine. [4] [A]

(1×5=5)

**Part C**

True or false questions

Answer all questions

Each question carries **1** mark

16. Sensory evaluation is important for consumer acceptance and product development. [1] [U]
17. Panel booths are used to distract the panellists. [2] [U]
18. Affective tests measure consumer preferences. [3] [A]
19. Baristas are wine experts trained in aroma evaluation.[4] [A]
20. Descriptive tests focus on identifying whether differences exist between samples.[5] [A]

(1×5=5)

**Part D**

One-word answers to questions

Answer all questions

Each question carries **1** mark

21. Name two appearance factors of food. [1] [U]
22. What is the role of a communicative panel? [2] [U]
23. What is the triangle test? [3] [U]
24. Explain the role of a tea somelier. [4] [U]
25. Choose the sensory test used to indicate the liking or disliking of food. [5] [A]

(1×5=5)

**Part E**

Short answer questions

Answer any **5** questions
Each question carries **2** marks

26. Give one example of textural change in food. [1] [U]
27. Discuss the appearance factors in food [1] [U]
28. List out the basic steps in performing sensory analysis. [2] [U]
29. Why is good ventilation necessary in a sensory lab? [2] [U]
30. Prepare the score card of Paired comparison test.t [2] [U]
31. Indicate the key elements in the scorecard of the Paired performance test. [3] [A]
32. Explain the role of a wine taster [4] [A]
33. Explain the significance of flavour profile analysis with a suitable [5] [A]

(2×5=10)

**Part F**

Long answer questions
Answer any **3** questions
Each question carries **5** marks

34. Discuss the flavour factors in food. [1] [U]
35. Describe the different types of sensory panels and the criteria for selecting panel members. [2] [U]
36. Compare the triangle test and the duo-trio test. [5] [A]
37. Prepare the scorecard of the Hedonic test (Verbal). [3] [A]
38. Discuss the applications of sensory analysis. [3] [U]

(5×3=15)