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# TEACHER'S CARE PUBLICATION

38/23, Vaigundaperumal Koil Street,Kancheepuram- 631502

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# UG TRB 2023-2024

Achiever's Point of View

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(Multiple Choice Questions)

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# TEACHER'S CARE ACADEMY, KANCHIPURAM

**TNPSC-TRB- COMPUTER SCIENCE -TET COACHING CENTER**

**HEAD OFFICE: NO. 38/23, VAIGUNDA PERUMAL KOIL, SANNATHI STREET, KANCHIPURAM – 1. CELL: 9566535080**

**B.Off 2: 65C, Thillai Ngr(West), 4th Cross St, Trichy – 620018**
**B.Off 3: 266-C - Advaitha Ashram Road, Opp to New Bus Stand, Salem – 4**

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## UG TRB 2024
## (QUESTION BANK)

| Major Subject | | | | |
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| **S.No** | **Test Name** | **Test Category** | **Number of Questions** | **Test Type** |
| 1 | **Test Set 1 (With Explanation)** | **Unit Test (10 X 100)** | 1000 | Q Bank |
| 2 | **Test Set 2 (With Explanation)** | **Unit Test (10 X 100)** | 1000 | Q Bank |
| 3 | **Weekly Test (Without Explanation)** | **Unit Test (10 X 100)** | 1000 | Q Bank |
| 4 | **Full Test** | **Full Test (4 X 150)** | 600 | Online |
| **Total Number of Questions (3000 Q Bank + 600 Online)** | | | **3600** | |

| தமிழ் கட்டாய தகுதித்தேர்வு | | | | |
|---|---|---|---|---|
| **S.No** | **Test Name** | **Test Category** | **Number of Questions** | **Test Type** |
| 1 | **Test Set 1 (Without Explanation)** | **Unit Test (10 X 100)** | 1000 | Q Bank |
| 2 | **Full Test** | **Full Test (4 X 30)** | 120 | Online |
| **Total Number of Questions (3000 Q Bank + 600 Online)** | | | **1120** | |

| **Total Number of Questions (Major & தமிழ் கட்டாய தகுதித்தேர்வு)** | **4,720 Questions** |
|---|---|

# நீங்கள் தேர்வில் வெற்றி பெற பின்பற்ற வேண்டிய விதிமுறைகள் & செயல்முறைகள்:-

1. ஒவ்வொரு முறையும் படிப்பதற்கு முன் குளிர்ந்த நீரில் முகம் கழுவவும். பின்பு தொடரவும்.
2. ஒவ்வொருவரும் குறைந்தபட்சம் 5 பேர் அதிகபட்சம் 10 நபர்களை இணைத்து (அல்லது) உங்கள் விருப்பப்படி அமைத்தும் பாடத்திட்டங்களை விவாதம் செய்து தெளிவுபெறலாம்.
3. கற்றல் கட்டுகளை படித்தபின் தேர்வை எழுதிப்பார்க்கவும். தெரியவில்லையெனில் கற்றல்களில் தேடி பார்க்கவும்.
4. ஒவ்வொரு நாளும் காலை, மாலை இரண்டு வேலையும் குறைந்தது 10 நிமிடமாவது மன அமைதிக்காக தியானம் செய்யவும்.
5. இரவு படுக்க போகும்முன் மிகவும் கடினமான (சூத்திரங்கள், தேதிகள், இலக்கண விதிகள்) முக்கிய தகவல்களை 10 நிமிடம் மனப்பாடம் செய்துவிட்டு படுக்கவும்.
6. மன அமைதிபெற சிறிதுநேரம் இயற்கையை ரசிக்கவும் அல்லது சிறுகுழந்தைகளுடன் 10 அல்லது 20 நிமிடங்கள் விளையாடவும்.
7. உங்கள் குடும்ப நபர்கள் மற்றும் நண்பர்களிடம் ஆழமான நம்பிக்கையுடன் வெற்றிபெறுவேன் என சொல்லி மகிழ்ச்சி அடையுங்கள்.
8. கற்றல் கட்டுக்களையும் மேலும் தகவல்களையும் தீட்டமிட்டு படிக்கவும்.
9. உங்கள் வண்ணக்கனவுகள் அனைத்தும் நினைவுகளாக மாற தொடர்ந்து கடுமையாக உழைக்கவும்.
10. கற்றல் கட்டுகளில் படிக்கும்போது சிகப்பு பேனாவினால் அடிக்கோடிட்டு படிக்கவும்.

**மன மகிழ்ச்சி கொள்வதற்கு**

முடியும் என்று நம்பு அதுவே
உங்கள் முன்னேற்றத்திற்கான தெம்பு
முடியாது என்று முடங்கிக் கிடந்தால்
மூட்டைப்பூச்சியும் முதுகில் ஏறி சவாரி செய்யும்
அதுபோல் நீங்களும்
திடமான முயற்சியோடும்
கடுமையான பயிற்சியோடும் இணையும்போது
*TRB*- தேர்வுகளில் மகத்தான வெற்றிபெற முடியும்
மகிழ்ச்சியோடு பணியில் சேர வாழ்த்துகிறோம்.

**மன நெருக்கடி மிகுந்த நண்பர்களுக்கு**

நினைத்ததற்கு மாறாக காரியங்கள் நடக்கும்போதும்
செல்லும் பாதைகள் அனைத்தும் கரடுமுடராய் இருக்கும்போது
குடும்ப பொறுப்புகள் எல்லாம் நம்மை அழுத்தும்போதும்
கையிருப்பு எல்லாம் கரைந்து கடன் தொல்லைகள் நம்மை நெருங்கும்போதும்
அதிகமானால் - அவசரமானால் - அவசரமாக சற்று ஓய்வு எடுத்துக்கொள்
எந்த நேரத்தில் *TRB* - தேர்வில் வெற்றிபெறும் லட்சியத்தை மறந்துவிடாதே
தொடர்ச்சியான பயிற்சி பாதைவிட்டு விலகிவிடாதீர்கள். வெற்றி நிச்சயம்.

நல்வாழ்த்துக்களுடன்

**TEACHER'S CARE ACADEMY**

# UGTRB - BOTANY

Questions - UNIT-1 : TEST-1

**1. Which of these viruses is used as a pesticide for crops infested by insects susceptible to contraction?**

A) Cauliflower mosaic virus
B) Cucumber mosaic virus
C) Rice tungro virus
D) Nuclear polyhedrosis virus

**2. Nitrogen fixation in woody trees is accomplished through the microorganism**

A) Rhizobium
B) Azotobacter
C) Frankia
D) Azospirillum

**3. Which of the following is a bacterium capable of nitrogen fixation?**

A) Nitrobacter
B) Acetobacter
C) Azotobacter
D) Nitrosomonas

**4. Which of the following statements is incorrect?**

A) Viroids are smaller than viruses.
B) RNA was found to be free in viroi
C) The RNA of the viroid is of high molecular weight.
D) In 1971, T.O. Diener discovered it.

**5. Which of the following pathogenic disease could have the symptoms like mosaic formation, leaf rolling and curling, yellowing and vein clearing, dwarfing, and stunted growth?**

A) Viral
B) Bacterial
C) Fungal
D) Deficiency syndrome.

**6. Interferons curb infection of**

A) Fungi
B) Bacteria
C) cancer
D) None of these

**7. First time a virus has been synthesized as a non-living crystal**

A) Pox virus
B) Flu virus
C) Tobacco mosaic virus
D) Bacteriophage

**8. The causes of the "potato mosaic" disease are**

A) Fungi
B) Bacteria
C) Virus
D) Mycoplasma

**9. Which of the following shows the coiled strands of RNA and capsomeres?**

A) Poliovirus
B) Tobacco mosaic virus
C) Measles virus
D) Retrovirus

**10. The term "virion is used for**

A) Mycoplasma colony
B) Group of viruses
C) Nostoc colony
D) Single virus

**11. The genetic material in viruses is**

A) Only RNA
B) Only DNA
C) RNA and DNA both
D) RNA or DNA i.e. one nucleic acid in a virus

**12. Each capsomere of TMV contains amino acids whose number is**

A) 158
B) 185
C) 815
D) 581

**13. Viruses did not find a place in classification because —**

A) There is no cellular structure in them
B) They can be crystallized
C) There is no cellular structure in them
D) All of the above

**94. Citric acid is produced by**

**A) Aspergillus niger** **B) Candida**

**C) Penicillium notatum** **D) Acetobacter xylanicum**

**95. Biofertilizers include those organism, which enhance the fertility of soil.**

**A) Milk is changed into curd by** **B) Acetobactor aceti**

**C) Bacillus megatherium** **D) Xanthomonas citri**

**96. Which of the following is famous mycologist of India**

**A) P. Maheshwari** **B) M.O.P. Iyengar**

**C) K. Sharma** **D) T.S.Sadasivan**

**97. Who gave the parasitic nature of fungus in plants**

**A) Pasteur** **B) Anton De Bary**

**C) Robert Koch** **D) J.F. Kuhn**

**98. In 1943 the causal organism and host of Bengal famine was**

**A) Wheat rust by Puccinia** **B) Blast of rice by Pyricularia oryzae**

**C) Blast of rice by Xanthomonas oryzae** **D) Brown leaf spot of rice by Helminthosporium oryzae**

**99. Which of the following is not correctly matched**

**A) Root knot disease ? Meloidogyne javanica** **B) Smut of bajra ? Tolysporium penicillariae**

**C) Covered smut of barley ? Ustilage nuda** **D) Late blight of potato ? Phytophthora infestans**

**100. According to their modes of nutrition, the fungi are classified**

**A) One category** **B) Three categories**

**C) Four categories** **D) Six categories**

# UGTRB - BOTANY

Answers - UNIT-1 : TEST-1

**1.Correct Answer : (D) Nuclear polyhedrosis virus**

**The nuclear polyhedrosis virus (NPV), part of the family of baculoviruses, is a virus affecting insects, predominantly moths and butterflies. It has been used as a pesticide.**

**2.Correct Answer : (C) Frankia**

**Most Frankia strains are specific to different plant species. The bacteria are filamentous and convert atmospheric nitrogen into ammonia via the enzyme nitrogenase, a process known as nitrogen fixation. ...Frankia is a gram-positive Bacteria that is found on the roots of plants.**

**3.Correct Answer : (C) Azotobacter**

**Azotobacter species are free-living, nitrogen-fixing bacteria; in contrast to Rhizobium species, they normally fix molecular nitrogen from the atmosphere without symbiotic relations with plants, although someAzotobacter species are associated with plants.**

**4.Correct Answer : (C) The RNA of the viroid is of high molecular weight.**

- **Viroids are infectious agents that consist of a single-stranded RNA molecule, but they are significantly smaller than viruses. Viroids are smaller than viruses because they lack a protein coat (capsi that is typically present in viruses.**
- **Viroids were indeed found to be free RNA molecules, meaning they do not require any associated proteins for their infectivity. They are composed solely of RN In 1971, T.O. Diener discovered viroids. His research led to the identification and characterization of these unique infectious RNA agents.**

**5.Correct Answer : (A) Viral**

- **Mosaic formation, leaf rolling and curling, yellowing and vein clearing, as well as dwarfing and stunted growth, are all potential symptoms of a viral infection.**
- **Mosaic patterns may appear due to abnormal pigmentation, while leaves can become curled or rolled causing distortion and abnormal growth.**
- **Chlorosis may lead to yellowing of the leaves while veins can be cleared resulting in a mottled appearance. Stunted development or dwarfing can also be caused by viral diseases that disrupt normal plant growth.**

**6.Correct Answer : (D) None of these**

**In response to viruses, bacteria, or other foreign substances, cells release interferons. These proteins help protect the body's cells from being infected and help fight off existing infections.**

**7.Correct Answer : (C) Tobacco mosaic virus**

**Tobacco mosaic virus. The tobacco mosaic virus (TMV) was the first virus to be discovered and is made of a single strand of RNA surrounded by a protein capsi It was first synthesized in the form of non-living crystals in 1935 by Wendell Stanley.**

**8.Correct Answer : (C) Virus**

**Virus. Potato mosaic disease is caused by a virus in the Potyviridae family, which infects potato plants and causes significant losses in crop productivity and quality.**

**9.Correct Answer : (B) Tobacco mosaic virus**

- **The structure of the Tobacco mosaic virus (TMV) is characterized by a coiled RNA strand and capsomeres.**
- **TMV is a plant virus that infects various plant species, including tobacco plants.**
- **Its genetic material is a single-stranded RNA molecule that forms a helical or coiled structure.**
- **The capsomeres refer to the protein subunits that make up the viral capsid, which is the protective protein coat surrounding the viral genetic material.**

**10.Correct Answer : (D) Single virus**

**As a single virus, a virion is composed of a nucleic acid (DNA or RN surrounded by a protein coat and sometimes an envelope of lipids. Virion infections can invade and replicate in cells.**

**11.Correct Answer : (D) RNA or DNA i.e. one nucleic acid in a virus**

**As a single virus, a virion is composed of a nucleic acid (DNA or RN surrounded by a protein coat and sometimes an envelope of lipids. Virion infections can invade and replicate in cells.**

**89.Correct Answer : (C) Plectenchyma**

**Plectenchyma (Pseudoparenchym is nothing but the interwoven mass of fungal mycelium which in cross-section look like parenchym**

**90.Correct Answer : (B) Aspergillus**

- **Aspergillus niger is a black mold we find in damp places and this species is largely used in laboratories for the fermentation process.**
  **But it often contaminates the other bacteriological and mycological cultures.**
- **A weed is a plant considered undesirable in a particular situation.**
- **Hence, Aspergillus is also regarded as 'weed of laboratory'.**
- **Because it can grow in unwanted places.**

**91.Correct Answer : (B) Deuteromycetes**

**Due to the presence of mentioned characters in question, this group is also called fungi imperfecti.**

**92.Correct Answer : (C) Conidia**

**Conidia are non-motile spores produced exogenously by constrictions at the tip of special hyphae called conidiophores.**

**93.Correct Answer : (A) Heterotrophs**

**Heterotrophs : Fungi (lack chlorophyll) obtain their nutrition from the extracellular digestion and absorption of the digested material such mode of nutrition is called heterotrophic and the organism celled heterotrophs.**

**94.Correct Answer : (A) Aspergillus niger**

**Aspergillus niger is exploited in the production of citric acid and oxalic acid from molasses.**

**95.Correct Answer : (D) Xanthomonas citri**

**Lactobacillus casei and Streptococcus lactis at**
**40o**

**96.Correct Answer : (D) T.S.Sadasivan**

**T.S. Sadasivan work on physiology of infection by Fusarium. Other famous Indian mycologists are K. Mehta, Mundkar and V. Subramaniyam.**

**97.Correct Answer : (C) Robert Koch**

**Koch postulates are applicable to bacteria and fungi as pathogen.**

**98.Correct Answer : (D) Brown leaf spot of rice by Helminthosporium oryzae**

**Brown leaf sport of rice is a seed born disease, which is caused by Helminthosporium oryzae.**

**99.Correct Answer : (C) Covered smut of barley ? Ustilage nuda**

**Covered smut of barley is caused by Ustilago hordei**

**100.Correct Answer : (B) Three categories**

**Modes of nutrition is three types : Saprophytic Parasitic Symbiotic (Mycorrhiz .**

# UGTRB - BOTANY

Questions - UNIT-1 : TEST-2

**1. Aflatoxins are produced by**

A) Bacteria
B) Viruses
C) Fungi
D) Nematodes

**2. Which of the following fungi are edible**

A) Agaricus campestris
B) Morchella esculenta
C) Podaxon prodaxis
D) All of these

**3. First antibiotic isolated was**

A) Penicillin
B) Neomycin
C) Terramycin
D) Streptomycin

**4. Algal fungi are placed in**

A) Ascomycetes
B) Basidiomycetes
C) Phycomycetes
D) Deuteromycetes

**5. A combined solution of copper sulphate and calcium hydroxide which is used as a fungicide is**

A) Fehling solution
B) Folins mixture
C) Carminative mixture
D) Bordeaux mixture

**6. The phase of bacterial growth during which bacteria shows Exponential growth curve is called?**

A) Lag phase
B) Log phase
C) Stationary phase
D) Decline phase

**7. The rate of generation of new bacterial cell become equal to the death rate during which phase?**

A) Lag phase
B) Log phase
C) Stationary phase
D) Decline phase

**8. During the lag phase?**

A) Microorganisms try to settle in the new environment
B) Shows exponential growth
C) Death rate is equal to the rate of generation of new cell
D) Number of live cells decreases

**9. Fluid Thioglycollate medium is used for the cultivation of?**

A) Aerobic bacteria
B) Anaerobic bacteria
C) Viruses
D) All of the above

**10. In the Brewer jar method?**

A) Air containing oxygen is evacuated out and replaced by mixture of hydrogen and nitrogen gases.
B) Hydrogen and carbondioxide gas is filed in the jar.
C) Loopful of organism is transferred to molten agar media and then it is shake and cool rapidly.
D) Any medium of reducing substances is heated rapidly to remove the oxygen from it completely and then it is coole

**11. During the decline phase?**

A) Microorganisms try to settle in the new environment
B) Shows exponential growth
C) Death rate is equal to the rate of generation of new cell
D) Number of live cells decreases

**12. Which of the following is not the characteristic of a growth curve?**

A) Shows development of microbial population under relatively stable environmental conditions
B) Plotted with logarithmic numbers
C) Graphs numbers of microbes versus time
D) Each growth curve consists of four distinct phases

**13. Generation time of Escherichia coli is**

A) 20 minutes
B) 20 hours
C) 20 days
D) 200 hours

# UGTRB - BOTANY

Answers - UNIT-1 : TEST-2

**1.Correct Answer : (C) Fungi**

**Aflatoxins are produced by fungi (Aspergillus flavus)**

**2.Correct Answer : (D) All of these**

**Agaricus compestris is a common field mushroom, Morchella esculanta having apothecia type of edible ascocarp (vern. gucchi) and Podaxon prodaxis is also edible.**

**3.Correct Answer : (A) Penicillin**

**A British Bacteriologist, Alexander flemming discovered the first antibiotic penicillin in 1928.**

**4.Correct Answer : (C) Phycomycetes**

- **Many scientist (Sachs, 1874; Bessey, 1950) believe that fungi, particularly class Phycomycetes, have evolved from siphonaceous green algae.**
- **Both the group have some common features such as presence of coenocytic thalli, flagellated zoospores, streaming movement and mode of sexual reproduction. Therefore Phycomycetes is called algal fungi.**

**5.Correct Answer : (D) Bordeaux mixture**

- **Bordeaux mixture was the first fungicide to be discovere It is discovered by proff. Millardet of Bordeaux university.**
- **This mixture consists of copper sulphate, lime and water (calcium hydroxide).**
- **This mixture is called holy water of plant pathology and effective against white rust, mildews and blights.**

**6.Correct Answer : (B) Log phase**

- **log phase, also referred to as the exponential phase or logarithmic phase, is one of the phases observed in a bacterial growth curve. The striking feature of this phase is the property of cell doubling through binary fission.**
- **The count of bacteria (new) that appear each time is proportionate to the current population. For any species of bacteria, there is a genetic determination of the generation time under specific growth conditions such as pH, temperature, nutrition, et This generation time is the intrinsic growth rate.**

**7.Correct Answer : (C) Stationary phase**

- **In the stationary phase, the rate of growth of the cells becomes equal to its rate of death.**
- **The rate of growth of the bacterial cells is limited by the accumulation of toxic compounds and also depletion of nutrients in the medi The cell population remains constant at this stage. Plotting this phase on the graph gives a smooth horizontal linear line.**

**8.Correct Answer : (A) Microorganisms try to settle in the new environment**

- **Lag time is defined as the initial period in the life of a bacterial population when cells are adjusting to a new environment before starting exponential growth.**
- **The bacteria upon introduction into the nutrient medium take some time to adapt to the new environment. In this phase, the bacteria does not reproduce but prepares itself for reproduction.**
- **The cells are active metabolically and keep increasing in size. The cells synthesise RNA, growth factors and other molecules required for cell division.**

**9.Correct Answer : (B) Anaerobic bacteria**

- **Fluid Thioglycollate Medium is used for sterility control of pharmaceutical products.**
- **Thioglycollate and L-Cystine in the medium reduce the redox potential of the culture medium in order to create an anaerobic atmosphere.**
- **In addition, mercury and other heavy metal compounds are inactivated by these agents.**

**10.Correct Answer : (A) Air containing oxygen is evacuated out and replaced by mixture of hydrogen and nitrogen gases.**

- **Brewer Anaerobic Agar is used for cultivating anaerobic and microaerophilic bacteri Brewer1 described a special Petri dish cover that allowed surface growth of anaerobes and microaerophiles without anaerobic equipment.**
- **The microorganisms were grown on agar with a low oxidation-reduction potential.**

# UGTRB - BOTANY

Questions - UNIT-1 : TEST-3

**1. Chitin present in fungal wall has a formula**

A) $(C_{22}H_{54}N_4O_{21})_n$
B) $(C_{21}H_{54}N_4O_{22})_n$
C) $(C_{22}H_{54}N_4O_{13})_n$
D) $(C_{22}H_{24}N_4O_{21})_n$

**2. Mushroom is**

A) Mucor
B) Saccharomyces
C) Agaricus
D) Penicillium

**3. Reserve food material of fungi is**

A) Starch
B) Protein
C) Glucose
D) Glycogen

**4. Fungus/Lichens which grow on wood is**

A) Terricolous
B) Saxicolous
C) Lignocolous
D) Corticolous

**5. What is true**

A) Toadstool is an edible fungus
B) Rust fungi are homoecious
C) Parathecium is fruiting body
D) In mushroom gills produce basidia

**6. Fungi differ from algae in having**

A) Chlorophyll
B) Starch as reserve food
C) Cell wall made up of cellulose
D) Cell wall made up of chitin and cellulose

**7. Puff ball is a**

A) Fungus
B) Alga
C) Moss
D) Pine cone

**8. Lichens are well known combination of an alga and a fungus where fungus has**

A) A parasitic relationship with the alga
B) A saprophytic relationship with the alga
C) An epiphytic relationship with the alga
D) A symbiotic relationship with the alga

**9. When fungi feed on dead organic matter, they are known as**

A) Dimorphic
B) Parasites
C) Saprophytes
D) None of these

**10. Which one of the following is a colonial alga?**

A) Ulothrix
B) Spirogyra
C) Volvox
D) Chlorella

**11. Which of the following shows zygotic meiosis?**

A) Chlamydomonas
B) Marchantia
C) Funaria
D) Fucus

**12. Find the incorrect statement**

A) Agar-agar is produced from Gracilaria
B) Chlorella is used in space food
C) Mannitol is a food reserve of Rhodophyceae
D) Algin is produced by algae

**13. Which of the following has non-flagellated isogamous gametes?**

A) Spirogyra
B) Chlamydomonas
C) Volvox
D) Fucus

# UGTRB - BOTANY

Answers - UNIT-1 : TEST-3

**1.Correct Answer : (A) $(C_{22}H_{54}N_4O_{21})_n$**

**2.Correct Answer : (C) Agaricus**

**3.Correct Answer : (D) Glycogen**

**4.Correct Answer : (C) Lignocolous**

**5.Correct Answer : (D) In mushroom gills produce basidia**

**6.Correct Answer : (D) Cell wall made up of chitin and cellulose**

**7.Correct Answer : (A) Fungus**

**8.Correct Answer : (D) A symbiotic relationship with the alga**

**9.Correct Answer : (C) Saprophytes**

**10.Correct Answer : (C) Volvox**

**11.Correct Answer : (A) Chlamydomonas**

**12.Correct Answer : (C) Mannitol is a food reserve of Rhodophyceae**

**13.Correct Answer : (A) Spirogyra**

**14.Correct Answer : (D) Fucus**

**15.Correct Answer : (C) Rhodophyta**

**16.Correct Answer : (D) Chlorella**

**17.Correct Answer : (A) isogametes**

**18.Correct Answer : (D) all of the above**

**19.Correct Answer : (A) cup-shaped**

**20.Correct Answer : (A) 50% or more**

**21.Correct Answer : (C) Monera**

**22.Correct Answer : (B) Capsid**

**23.Correct Answer : (C) DNA or RNA**

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# UGTRB - BOTANY

Questions - UNIT-2 : TEST-1

**1. This is a crustose lichen**

A) Peltigera
B) Usnea
C) Rhizocarpon
D) None of the above

**2. Most of the scientists deem the algal-fungal relationship in lichens as helotism. Helotism is a**

A) master-master relationship
B) master-slave relationship
C) a kind of mutualism
D) a kind of symbiotic association

**3. Majorly, lichens are the pollution indicators of**

A) CO
B) Mercury
C) $NO_2$
D) $SO_2$

**4. The symbiotic association of algae and fungi is known as**

A) Mycorrhiza
B) lichen
C) Mycoplasma
D) Both and (b)

**5. Vegetative reproduction in lichens takes place by**

A) isidia
B) soredia
C) fragmentation
D) all of the above

**6. In the studies on the atmospheric pollution, lichens are important as they**

A) can readily multiply in polluted atmosphere
B) are very sensitive to pollutants
C) efficiently purify the atmosphere
D) can also be grown in greatly polluted atmosphere

**7. This lichen is pioneer in xerosere**

A) fruticose lichen
B) foliose lichen
C) crustose lichen
D) leprose lichen

**8. A common phycobiont in lichens are**

A) Cetraria
B) Microcystis
C) Trebouxia
D) Oedogonium

**9. Reindeer moss is a lichen known as**

A) Usnea
B) Rocella
C) Cladonia
D) Parmelia

**10. This about lichens is incorrect**

A) Lichens are indicators of pollution
B) They grow rapidly about 2cm every day
C) Some species are eaten by reindeers
D) They have symbiotic relationship between alga and fungus

**11. Which of the following is incorrect?**

A) Gametes are produced in sex organs called gametophyte
B) Male gametes are transported to female gametes through water
C) Male and female gametes further fuse to form a zygotic structure that develops into an embryo
D) This embryo further develops to form a haploidic structure called sporophytes that bear spores

**12. Sporophyte bears spores in**

A) Capsule
B) Seta
C) Foot
D) Strond

**13. In some of the liverworts, spore dispersal is aided by**

A) elaters
B) peristome teeth
C) indusium
D) calyptra

# UGTRB - BOTANY

Questions - UNIT-2 : TEST-2

**1. In eusporangiate ferns, sporangium is produced from**

A) A single, superficial sporangial initial
B) A group of sporangial initial cells
C) Vegetative shoots
D) Root mass

**2. Fern prothallus develops from the**

A) Oospore
B) Antherozoid
C) Elater
D) Spore

**3. How many Neck canal cells are present in Dryopteris?**

A) One
B) Two
C) Many
D) None of these

**4. What is correct?**

A) Protonema of Moss and prothallus of Dryopteris are sporophytic
B) Protonema of Moss and prothallus of Dryopteris are gametophytic
C) Moss protonema is sporophytic, Pteris prothallus is gametophytic but plant body of Pteris and Funaria are gametophytic
D) Plant body of Moss is gametophytic, while that of Dryopteris is both gametophytic and sporophytic

**5. Zygote of spirogyra produces four haploid nuclei in which**

A) One functional
B) Resolution occur
C) Maginication occur
D) Resolving power present

**6. Branched conidiophores are present in**

A) Rhizopus
B) Penicillium
C) Ustilago
D) Aspergillus

**7. Sexual reproduction in spirogyra is morphologically characterized by**

A) Oogamy
B) Anisogamy
C) Isogamy
D) Isogamy and oogamy both

**8. Earliest settelers on barren land and rocks are**

A) Mosses
B) Lichens
C) Fern
D) None

**9. Lichens are not found**

A) In big cities
B) Arctic region
C) In villages
D) On bark rocks

**10. Mycorrhiza is a**

A) Parasitic relation between fungus and algae
B) Symbiotic relation between fungus and algae
C) Symbiotic relation between fungus and roots
D) Parasitic relation between fungus and roots

**11. The protostele in which xylem core is star like is called:**

A) Actinostlele
B) Plectostele
C) Siphonostele
D) Haplostele

**12. Vegetative reproduction in lichens takes place by**

A) isidia
B) soredia
C) fragmentation
D) all of the above

**13. Mycorrhiza is an association between roots of higher plant and fungus. It is an example oF**

A) Symbiosis
B) Myremecophilly
C) Helotism
D) Parasitism

# UGTRB - BOTANY

Questions - UNIT-2 : TEST-3

**1. Protosteles are classified on the base of.....**

A) Phloem shape
B) xylem shape
C) leaf gap
D) both b & c

**2. Xylem with solid cylinder having no pith is known as.....**

A) Protosteles
B) siphonostele
C) eustele
D) all

**3. The protosteles in which xylem is in the form of parallel plates is called....**

A) Haplostele
B) actinostele
C) plectostele
D) solenostele

**4. Which one has no leaf gap in stem ....?**

A) siphanostele
B) (protostele
C) solenostele
D) a & c

**5. The most primitive type of stele is...**

A) Protosteles
B) atactostele
C) eustele
D) ectoploic

**6. In monocots which type of stele is present.....**

A) atactostele
B) siphonostele
C) eustele
D) both a & c

**7. The stele in which no. of vascular bundle are scattered regularly in ground tissue is....**

A) Eustele
B) Siphonostele
C) Protosteles
D) atactostele

**8. Embryo is present by true vasculature is absent in phylum:**

A) Cyanophyta
B) Tracheophyta
C) Bryophyta
D) Chlorophyta

**9. The unique features of bryophytes compared to other green plant groups is that:**

A) They produce spores.
B) They have vascular tissue.
C) They lack roots.
D) Their sporophytes are attached to gametophytes.

**10. In bryophytes diploid number of chromosomes occur in:**

A) Gametes
B) Spores
C) Spore mother cell
D) Nuclei of gametes

**11. Which of the following is bryophytes possess?**

A) Funaria
B) Volvox
C) Chlorella
D) Spirulina

**12. The group of Bryophyta includes:**

A) Liverworts and fern
B) Liverworts and club moss
C) Moss and ferns
D) Liverworts and moss

**13. Bryophytes differ from thallophytes in having:**

A) Embryo
B) Rhizoids
C) Sterile jacket around sex organs.
D) All the above

# UGTRB - BOTANY

Questions - UNIT-3 : TEST-1

**1. Fossils fuel is an important source of energy for**

A) transport
B) homes
C) industries
D) all of them

**2. Burning of fossils fuel is leading environment towards**

A) pollution
B) global warming
C) climate change
D) all of above

**3. A dangerous activity which results in many deaths due to gas explosion, caves in and flooding is**

A) coal mining
B) climbing mountain
C) extracting oil
D) hydropower generation

**4. Due to constant heat and pressure, buried plants turn in to**

A) wood
B) coal
C) fertilizer
D) oil

**5. Energy is released from fossil fuels when they are**

A) Pumped
B) Cooled
C) Burned
D) Pressurized

**6. The most nuclear fuel used in the world is**

A) Thorium – 232
B) Uranium – 238
C) Uranium – 235
D) Plutonium – 239

**7. The blades in wind turbines are connected to_____**

A) Nacelle
B) Tower
C) Foundations
D) String

**8. How many forms of fossil fuels are there**

A) 1
B) 2
C) 3
D) 4

**9. According to WHO, how many premature deaths annually linked to air pollution causing by the burning of fossil fuels?**

A) One million
B) Three million
C) Five million
D) Seven million

**10. When coal burns in air then**

A) Carbon dioxide is formed
B) Sulphur dioxide is formed
C) Carbon monoxide is formed
D) Hydrogen gas is formed

**11. Purest form of carbon is**

A) Coal
B) Charcoal
C) Coke
D) All of these

**12. Coaltar contains about**

A) 300 substance
B) 400 substance
C) 200 substance
D) 100 substance

**13. An example of fossil fuel is**

A) Wood
B) Animal waste
C) Coal
D) All of these

# UGTRB - BOTANY

Questions - UNIT-3 : TEST-2

**1. To which one of the following the genus williamsonia belongs**

A) Cycadales
B) Coniferales
C) ginkogoales
D) bennittitales

**2. Jurassic period is about**

A) 265 million years back
B) 165 million years back
C) 65 million years back
D) 365 million years back

**3. Transfusion tissue, a modified vascular tissue is present in the leaves of [BHU 1985; CBSE PMT 1998]**

A) Pinus
B) Dryopteris
C) Lycopodium
D) Dalbergia

**4. The wing in Pinus seed originates from [AIIMS 1987; MP PMT 1993]**

A) Integument
B) Adaxial surface of ovuliferous scale
C) Bract scale
D) Cone axis

**5. Seed of Pinus shows three generations as [J & K CET 2002]**

A) Parent sporophyte, gametophyte and future sporophyte
B) Parent gametophyte, sporophyte and future gametophyte
C) Parent sporophyte, sporophyte, future gametophyte
D) None of these

**6. In Pinus male gametes are produced in the pollen tube by the division of which of the following cells**

A) Body cell
B) Stalk cell
C) Tube cell
D) Prothallial cell

**7. The seed of Pinus sp. is**

A) Uneconomic and nonendospermic
B) Abaxial and rounded
C) Adaxial and endospermic
D) Hypogeal and monocotyledonous

**8. In Pinus male and female reproductive structures occur**

A) On different branches of the same plant
B) On different plants
C) On same branch
D) None of these

**9. The pollination in Pinus is**

A) Entomophilous
B) Anemophilous
C) Hydrophilous
D) Malscophilous

**10. In Pinus only lower part of oospore is concerned with the development of embryo, such development is**

A) Meroblastic
B) Periblastic
C) Mesoblastic
D) None of these

**11. In Pinus female gametophyte develops only from**

A) Upper most haploid megaspore
B) The lower most haploid megaspore
C) Penultimate megaspore
D) The 3rd megaspore

**12. Female cone of Pinus is considered equivalent to**

A) Dwarf shoot
B) Long shoot
C) Needles
D) Scale leaves

**13. Siphonogamous fertilization takes place in**

A) Bryophytes
B) Selaginella
C) Fern
D) Pinus

# UGTRB - BOTANY

Questions - UNIT-3 : TEST-3

**1. 'Saccus' term is used for**

A) exine of pollen grains of Pinus
B) intine of pollen grains of Pinus
C) Wings of pollen grains of Pinus
D) Wings of seeds of Pinus

**2. Flowers and cones are similar because**

A) both assist seed dispersal
B) both are responsible for attracting insects to pollinate
C) both are shiny and bright
D) both are reproductive structures

**3. An autotrophic, prokaryotic and nitrogen-fixing symbiont is present in**

A) Cicer
B) Cycas
C) Sequoia
D) Pinus

**4. Pick the pair that is incorrectly matched**

A) Cycas – coralloid roots
B) Abies – wood tar, wood gas
C) Pinus – Mycorrhizal roots
D) Sequoia – Redwood tree

**5. This serves as a connecting link between the angiosperms and gymnosperms**

A) Gnetales
B) Coniferales
C) Ginkgoales
D) Cycadales

**6. Though Cycas has an embryo with two cotyledons, it is not grouped under dicotyledonous plants as**

A) ovules are naked
B) possesses compound leaves
C) has megasporophyll
D) resembles a palm tree

**7. In gymnosperms, the ovules typically are**

A) bitegmic and anatropous
B) bitegmic and orthotropous
C) unitegmic and orthotropous
D) unitegmic and anatropous

**8. Tallest known gymnosperm is**

A) Pinus
B) Ginkgo
C) Sequoia
D) Ephedra

**9. Inverted omega-shaped organization of vascular bundles is seen in**

A) cycas root
B) cycas stem
C) cycas leaflet
D) cycas rachis

**10. Phanerogams without the ovaries are**

A) angiosperms
B) pteridophytes
C) gymnosperms
D) all the above

**11. Gymnosperms are also called softwood spermatophytes because they lack**

A) Cambium
B) Phloem fibres
C) Thick walled tracheids
D) Xylem vessels

**12. The first group of terrestrial plants to get rid of the swimming sperm was**

A) Club moses
B) Ferns
C) Gymnosperm
D) Angiosperms

**13. Coralloid roots of cycas possess a symbiotic algae**

A) Anabaena
B) Chlamydomonas
C) Aulosira
D) None of the above

# UGTRB - BOTANY

Questions - UNIT-4 : TEST-1

**1. Linnaeus is credited with introducing**

A) The concept of inheritance
B) Law of limiting factor
C) Theory of heredity
D) Binomial nomenclature

**2. Out of the 4 widely known systems of classification one remains less phylogenetic and more natura land that is of**

A) Engler and Prant
B) Hutchinson
C) Bentham and Hooker
D) Rendle

**3. The chief merit of Bentham and Hookers classification is that**

A) it is a natural system of classification of all group of plants
B) a system based on evolutionary concept
C) it also considered the phylogenetic aspect
D) The description of taxa are based on actual examination of the specimens

**4. 'Systema Naturae' written by Linnaeus contains a list of**

A) 4000 species of plants
B) 2000 species of plants
C) 4200 species of plants
D) 4200 species of animals

**5. Natural system of classification of plants differs from artificial system of classification in**

A) taking into account only one vegetative character
B) taking into account only one floral character
C) taking into account all the similarities between plants
D) all of these

**6. One of the best methods for understanding general relationships of plants is**

A) Cytotaxonomy
B) Experimental Taxonomy
C) Numerical Taxonomy
D) Chemotaxonomy

**7. Systematics deals with**

A) Identification of Organism
B) Classification of organisms
C) the kinds and diversity of all organisms and the existing relationships amongst themselves
D) identification, naming and classification of both plants and animals

**8. α- taxonomy deals with**

A) Classical taxonomy
B) Chemotaxonomy
C) phylogeny
D) experimental taxonomy

**9. Classical taxonomy is also termed**

A) βtaxonomy
B) systematic
C) descriptive taxonomy
D) experimental taxonomy

**10. The advantage of Systematics is that it**

A) gives an idea of organic diversity, its origin and evolution in the plant and animal kingdom
B) is complementary to other branches of biology
C) provides correct information needed in agriculture, medical, veterinary sciences etc.
D) All of these

**11. Syngenesious anthers and epipetalous stamens are found in**

A) Liliaceae
B) Malvaceae
C) Solanaceae
D) Compositae

**12. Indefinite stamens are characteristic of family**

A) Malvaceae
B) Gramineae
C) Labiatae
D) Cruciferae

# UGTRB - BOTANY

Questions - UNIT-4 : TEST-2

**1. The thorn of Alhagi is stem modification because it bears**

A) Axillary position
B) Flowers
C) Exogenous origin
D) All of these

**2. Rhizome of Crocus (Saffron) is**

A) Rhizome
B) Corm
C) Root
D) Bulb

**3. Rhizomes are mostly**

A) symboidal
B) diageotrophic
C) horizontal
D) All of these

**4. Stem thorns help in**

A) Climbing
B) Protection from grazing animals
C) Reduction in rate of transpiration
D) All of these

**5. Buds occurring on the nodes outside the leaf bases are**

A) Axillary
B) Extra-axillary
C) Terminal
D) Cauline

**6. Floral bud tendril is found in**

A) Antigonon
B) Smilax
C) Rose
D) Bryophyllum

**7. Thorn is a stem structure because it**

A) Develops from trunk
B) Develops from axillary bud
C) Grows from external surface
D) Is pointed

**8. Potato is (undergrounstem because it**

A) Possesses axillary buds (Eyes)
B) Lacks chlorophyll
C) Does not bear roots
D) Contains reserve food

**9. Bulb is modified**

A) Leaf
B) Shoot
C) Root
D) Flower

**10. Thorn of Bougainvillea is modified**

A) Stem
B) Leaf
C) Floral bud
D) Root

**11. Prickles of Rose are**

A) Modified leaves
B) Modified stipules
C) Exogenous in origin
D) Endogenous in origin

**12. The bulb stores food in**

A) Enlarged roots
B) Swollen leaf bases
C) Swollen stem
D) Inflorescence

**13. Ginger plant has an underground stem which is**

A) Rhizome
B) Bulb
C) Tuber
D) Corm

# UGTRB - BOTANY

Questions - UNIT-4 : TEST-3

**1. Which of the following is an edible modified root?**

A) Potato
B) Sweet potato
C) Groundnut
D) both (a) and (b)

**2. Clinging roots are found in**

A) Podostemon
B) Orchid
C) Trapa
D) Screwpine

**3. Where do you find velamen?**

A) in roots of screwpine
B) in aerial roots of orchids
C) in leaves of Ficus
D) in aerial and terrestrial roots of orchids

**4. Which of the following has buttress roots?**

A) Banyan
B) Sorghum
C) Pandanus
D) Terminalia

**5. Roots of which of the following plants contains an oxidising agent?**

A) Soybean
B) Radish
C) Mustard
D) Carrot

**6. Roots developing from a part of the plant other than radicle are called**

A) Fibrous
B) Adventitious
C) Epicaulous
D) Epiphyllous

**7. Which of the following plants has stilt roots?**

A) Bryophyllum
B) Radish
C) Pandanus
D) Mango

**8. Assimilatory or photosynthetic roots are present in**

A) Tinospora
B) Trapa
C) Taeniophyllum
D) All of the above

**9. Which of the following is a geocarpic fruit?**

A) Garlic
B) Onion
C) Potato
D) Peanut

**10. Which of the following is homologous with sweet potato?**

A) Potato
B) Colocasia
C) Turnip
D) Ginger

**11. Nodulose root found in:**

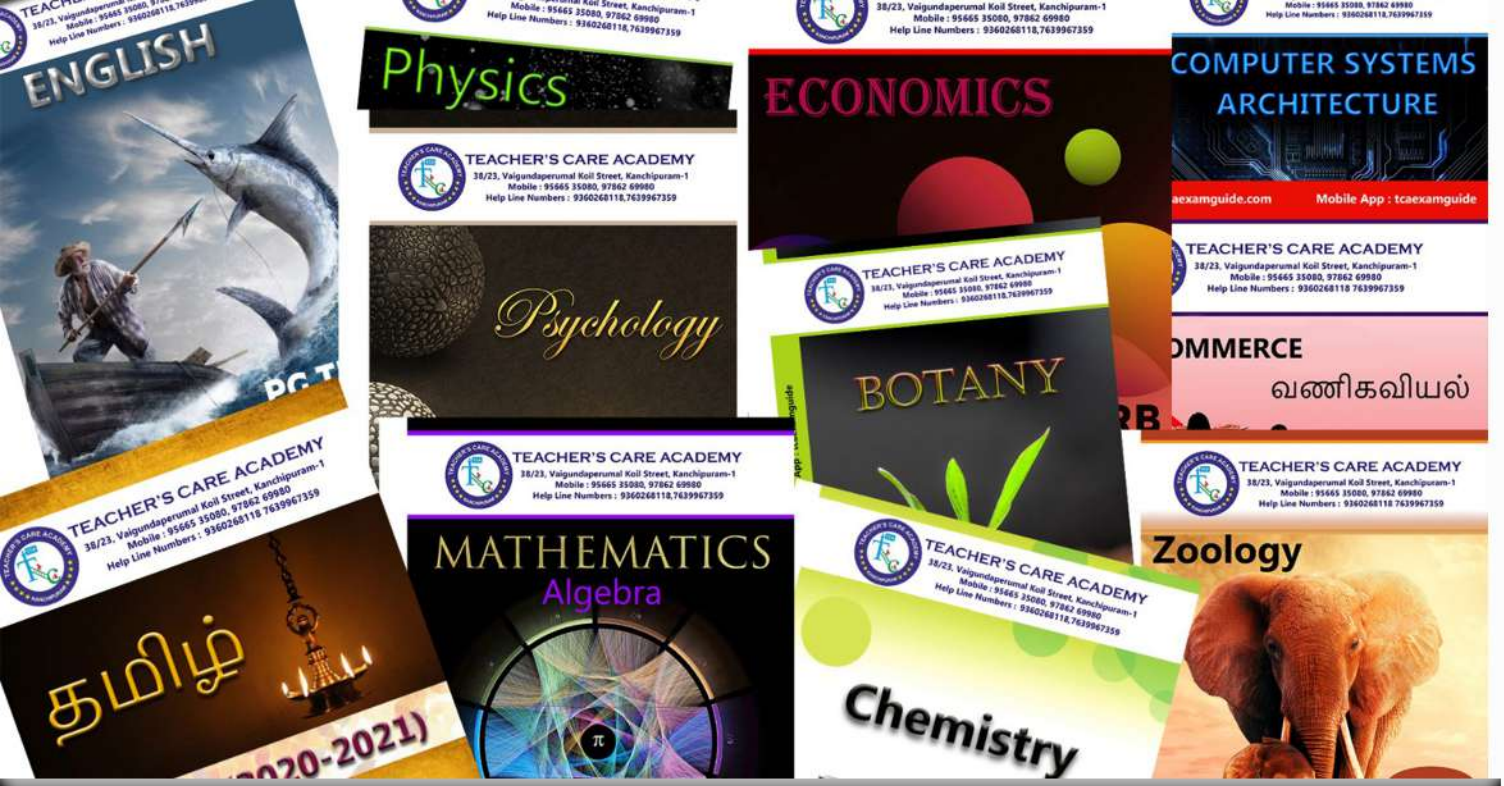
A) Curcuma longa
B) Mango ginger
C) Ipomoea
D) None of these

**12. Prop roots are:**

A) Tap roots
B) Adventitious root
C) Secondary roots
D) all

**13. Monocot can be distinguished from dicot by:**

A) Aestivation
B) Venation
C) Both 1 and 2
D) None of these

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# UGTRB - BOTANY

Questions - UNIT-5 : TEST-1

**1. Conjoint, collateral and closed vascular bundle is found in**

A) Monocot stem
B) Monocot root
C) Dicot stem
D) Dicot root

**2. Pollen grains can be stored in _____**

A) liquid oxygen
B) liquid hydrogen
C) liquid ozone
D) liquid nitrogen

**3. _____ species produces large number of pollens.**

A) Leguminosae
B) Rosacea
C) Anemophilous
D) Solanaceae

**4. One of the major contributors to pollen allergy is ____**

A) lawn grass
B) carrot grass
C) wheat grass
D) paddy

**5. Pollen grain is also known as _____**

A) microspore
B) microsporangium
C) megaspore
D) megasporangium

**6. Why are pollens spiny?**

A) Fertilization
B) Easy pollination
C) To attach to bodies of insects
D) Appearance

**7. Which nutrients do the pollen grains contain the most?**

A) Vitamins
B) Proteins
C) Fats
D) Carbohydrates

**8. Pollen grain protoplast is _____**

A) large
B) multinucleate
C) porous
D) uninucleate

**9. Cytoplasm of the pollen grains are rich in _____**

A) starch
B) proteins
C) minerals
D) vitamins

**10. Wall of pollen grain is called as _____**

A) sporopollenin
B) sporoderm
C) stomium
D) tapetum

**11. Intine is ____ in nature.**

A) starchy
B) parenchymatous
C) pectocellulosic
D) epidermal

**12. Exine is made up of ____**

A) vascular strands
B) sporopollenin
C) parenchyma
D) meristematic cells

**13. Which of the following is a part of the ektexine?**

A) Baculate
B) Endothecium
C) Tapetum
D) Epidermis

# UGTRB - BOTANY

Questions - UNIT-5 : TEST-2

**1. What is the special leaf anatomy in $C_4$ plants known as?**

A) Mesophyll anatomy
B) Vascular anatomy
C) Kranz anatomy
D) Calvin anatomy

**2. What is the arrangement of cells in plants showing Kranz anatomy?**

A) Tapered
B) Irregular
C) Wreath
D) Triangular

**3. Which of the following is false regarding the bundle sheaths of plants showing Kranz anatomy?**

A) They lack chloroplasts
B) They are layered around the vascular bundles
C) They have thick walls
D) They lack intercellular spaces

**4. Which of these is a $C_4$ plant?**

A) Wheat
B) Maize
C) Rice
D) Cotton

**5. Which of these features cannot help us differentiate between $C_3$ and $C_4$ plants?**

A) Presence of Kranz anatomy
B) Presence of photorespiration
C) Presence of chloroplasts
D) Presence of bundle sheath

**6. Which of these is the primary carbon dioxide acceptor in the Hatch and Slack pathway?**

A) PEP
B) PGA
C) OAA
D) PEPcase

**7. Which of these are not present in mesophyll cells?**

A) OAA
B) PEP carboxylase
C) PEPcase
D) RuBisCO

**8. Which of these is the $C_4$ acid?**

A) PEP
B) PGA
C) OAA
D) RuBisCO

**9. Which of these is not a 4-carbon compound?**

A) Aspartic acid
B) OAA
C) Malic acid
D) PGA

**10. Which enzyme is a major component of the bundle sheath cells?**

A) PEPcase
B) PEP
C) RuBisCO
D) PEP carboxylase

**11. Which of these is common to $C_3$ and $C_4$ plants?**

A) OAA
B) PGA
C) Calvin cycle
D) Photorespiration

**12. In which of these cells does the Calvin pathway occur in $C_3$ plants?**

A) Mesophyll cells
B) Bundle sheath cells
C) Epidermal cells
D) Sieve cells

**13. In which of these cells does the Calvin pathway occur in $C_4$ plants?**

A) Mesophyll cells
B) Bundle sheath cells
C) Epidermal cells
D) Sieve cells

# UGTRB - BOTANY

Questions - UNIT-5 : TEST-3

**1. The waxy substance associated with the wall of the cork cell is**

A) Lignin
B) Hemicellulose
C) Cutin
D) Suberin

**2. A tissue that does not contain lignin**

A) Sclerenchyma
B) Parenchyma
C) Collenchyma
D) Chlorenchyma

**3. Lateral roots originate in**

A) Cortex
B) Endodermal cells
C) Pericycle
D) Cork cambium

**4. Which gives rise to the cork tissue?**

A) Periblem
B) Phellogen
C) Phelloderm
D) Periderm

**5. Which are the external protective tissues of the plant?**

A) Cortex and epidermis
B) Cork and cortex
C) Pericycle and cortex
D) Epidermis and cork

**6. Following is the characteristic of collenchyma**

A) Elongated cells with thickened corners
B) Isodiametric cells with thickened walls
C) Elongated cells with deposits of cellulose and pectin
D) Isodiametric cells with deposits of cellulose and pectin

**7. Casparian strips are found in**

A) Epidermis
B) Endodermis
C) Exodermis
D) Pericycle

**8. The apical meristem of the root is found in**

A) Taproots
B) Radicals
C) Adventitious roots
D) All the roots

**9. Bordered pits are found in**

A) Vessel wall
B) Sieve cells
C) Sieve tube
D) Companion cells

**10. Where in epiphytes are velamen cells located?**

A) Below the endodermis
B) Below the epidermis
C) Just outside the cortex
D) Just outside the exodermis

**11. Intercalary meristem results in**

A) Primary growth
B) Secondary growth
C) Apical growth
D) None

**12. The age of the tree can be determined by**

A) Measuring its diameter
B) Counting the number of annual rings
C) Counting the number of leaves
D) Finding out the number of branches

**13. Which meristem helps in increasing the girth of the plant?**

A) Primary meristem
B) Apical meristem
C) Intercalary meristem
D) Lateral meristem

# UGTRB - BOTANY

Questions - UNIT-6 : TEST-1

**1. What is Microbiology?**

A) Study of molecules that are visible to human eyes
B) Study of animals and their family
C) Study of organisms that are not visible to naked eyes
D) Study of microscope

**2. Who is known as the father of Microbiology?**

A) Edwin John Butler
B) Ferdinand Cohn
C) Robert Koch
D) Antoni van Leeuwenhoek

**3. Which microorganisms) among the following perform photosynthesis by utilizing light?**

A) Cyanobacteria, Fungi and Viruses
B) Viruses
C) Cyanobacteria
D) Fungi

**4. Which part of the compound microscope helps in gathering and focusing light rays on the specimen to be viewed?**

A) Condenser lens
B) Magnifying lens
C) Objective lens
D) Eyepiece lens

**5. . Which of the following are produced by microorganisms?**

A) Alcoholic beverages
B) Fermented dairy products
C) Breads
D) All of the mentioned

**6. What is the approximate size of the bacterial cell?**

A) 1mm in diameter
B) 0.5 to 1.0 micrometer in diameter
C) 2mm in diameter
D) 2 micrometer in diameter

**7. The greatest resolution in light microscopy can be obtained with _____**

A) Shortest wavelength of visible light used
B) Longest wavelength of visible light used
C) An objective with minimum numerical aperture
D) Shortest wavelength of visible light used and an objective with the maximum numerical aperture

**8. Which among the following are "Spirochetes"?**

A) Streptomyces sp.
B) Treponema pallidum
C) Spirillum volutans
D) Corynebacterium diphtheriae

**9. Bacteria having clusters of flagella at both poles of cells are known as?**

A) Amphitrichous
B) Monotrichous
C) Peritrichous
D) Lophotrichous

**10. The respiratory chain of bacteria is associated with the _____**

A) cytoplasmic membrane
B) cell wall
C) cytoplasm
D) mitochondrial membrane

**11. Glycolysis can occur in _____**

A) anaerobic cells
B) aerobic cells
C) neither aerobic and anaerobic cells
D) both aerobic and anaerobic cells

**12. Which of the following enzyme removes the RNA primer with its 5'-nuclease activity?**

A) DNA polymerase III
B) RNA polymerase
C) DNA polymerase I
D) DNA polymerase II

**13. Phosphorus is essential component of _____**

A) phospholipids
B) teichoic acid
C) nucleotides
D) All of the mentioned

# UGTRB - BOTANY

Questions - UNIT-6 : TEST-2

**1. Blast disease primarily affects which part of the rice plant?**

A) Leaves
B) Stems
C) Roots
D) Seeds

**2. Blast disease is characterized by the presence of:**

A) Blast lesions on leaves
B) Stem discoloration
C) Root rot symptoms
D) Grain deformities

**3. Blast disease is favored by:**

A) High humidity
B) Low humidity
C) Extreme heat
D) Drought conditions

**4. How does Blast disease spread from plant to plant?**

A) Wind
B) Water splashes
C) Insects
D) Soil

**5. Which of the following is NOT a common control measure for Blast disease?**

A) Seed treatment
B) Fungicide application
C) Planting resistant varieties
D) Excessive irrigation

**6. Blast disease can cause:**

A) Yield loss
B) Stem elongation
C) Root swelling
D) Early flowering

**7. Blast disease is primarily transmitted through:**

A) Infected seeds
B) Insects
C) Airborne spores
D) Contaminated soil

**8. Blast disease is more common in rice varieties with:**

A) Strong resistance genes
B) Low nitrogen levels
C) Excessive pruning
D) Compact panicles

**9. What is the primary mode of reproduction for the Blast fungus?**

A) Spores
B) Budding
C) Binary fission
D) Fragmentation

**10. Blast lesions on rice leaves are typically characterized by:**

A) Brown to grayish centers with a dark border
B) Yellowing of the entire leaf
C) Circular water-soaked spots
D) Red discoloration along the leaf veins

**11. Which of the following is a common symptom of Blast disease in rice panicles?**

A) Seed discoloration
B) Stunted growth
C) Root rot
D) Stem wilting

**12. Blast disease can be controlled by:**

A) Removing infected plants
B) Applying fungicides
C) Planting resistant varieties
D) All of the above

**13. Which phage is used for phage display technique?**

A) T7
B) M13
C) ƛ-phage
D) ϕ6

# UGTRB - BOTANY

Questions - UNIT-6 : TEST-3

**1. Two organisms which are very closely related to each other have which of the following property?**

A) similar mol% G+C values
B) different mol% G+C values
C) similar mol% G+C values and heteroduplexes are formed
D) different mol% G+C values and heteroduplexes are not formed

**2. According to Bergey's Manual of Systematic Bacteriology, prokaryotes that lack a cell wall belong to the group?**

A) Gracilicutes
B) Firmicutes
C) Tenericutes
D) Mendosicutes

**3. Which of the following are characteristics of archaebacterial different from eubacteria?**

A) methane-producers
B) extreme halophiles
C) thermoacidophiles
D) methane-producers, extreme halophiles, and thermoacidophiles

**4. Which among the following come under Gram-positive eubacteria?**

A) Clostridium
B) Actinomyces
C) Rhizobium
D) Clostridium, Actinomyces

**5. Bacteria are no more classified as plants primarily because :**

A) These are unicellular
B) These are microscopic
C) Many of them are parasitic
D) They have no chlorophyll

**6. A particular species of which one the following, is the source bacterium of the antibiotic,discovered next to penicillin, for the treatment of tuberculosis?**

A) Escherichia
B) Streptomyces
C) Rhizobium
D) Nitrocbacter

**7. Which bacteria is rod shaped?**

A) Coccus
B) Spirillium
C) Bacillus
D) Vibrio

**8. Which bacteria fixes nitrogen in the soil?**

A) Nitrobacter
B) Nitrosomonas
C) Rhizobium
D) Clostridium

**9. The Streptococcus lactis is responsible for**

A) Conversion of milk into curd
B) Conversion of molasses into alcohol
C) Tanning of leather
D) Flavouring the leaves of tea and tobacco

**10. A free living anaerobic bacterium capable of N2 fixation in soil is**

A) Rhizobium
B) Azotobacter
C) Streptococcus
D) Clostridium

**11. What does "T" refers to in Tissue culture flask**

A) Total volume of the flask
B) Total weight of the flask
C) Total surface area of the flask
D) Total mass of the flask

**12. Which of the following is not a type of basic T-Flask?**

A) T-25
B) T-55
C) T-75
D) T-175

**13. Hybridoma cells have an application to produce:**

A) Antigens
B) Antibodies
C) Cancer cells
D) Cell lines

# UGTRB - BOTANY

Questions - UNIT-7 : TEST-1

**1. Which part of the cell contains water-like substances with dissolved molecules and suspended in them?**

A) Protoplasm
B) Cytoplasm
C) Cytosol
D) Matrix

**2. Statement A: Water is the limiting factor for plant growth and productivity.**
**Statement B: A minute amount of water is lost to the environment by the leaves.**

A) Both the statements are true
B) Both the statements are false
C) Statement A is true but Statement B is false
D) Statement B is true but Statement A is false

**3. The amount of water lost by plants due to transpiration and guttation?**

A) 98%
B) 12%
C) 92%
D) 50%

**4. Which potential is considered of negligible value?**

A) Water potential
B) Matrix potential
C) Solute potential
D) Pressure potential

**5. The value of water potential of pure water is _____**

A) 1
B) -1
C) 0
D) -2

**6. The greater concentration of water in a system leads to _____**

A) increased transpiration
B) increased solute potential
C) hypertonic condition
D) greater kinetic energy

**7. The unit of water potential is_____**

A) psi
B) no unit
C) pascal
D) mmole per kg

**8. Statement A: Solute potential increases with dissolution of solutes.**
**Statement B: The value of solute potential is always negative.**

A) Both the statements are true
B) Both the statements are false
C) Statement A is true but Statement B is false
D) Statement B is true but Statement A is false

**9. Cohesion of water molecules is due to_____**

A) Diffusion
B) Osmosis
C) Gravitational force
D) Surface tension

**10. Which of the following is NOT the property of water?**

A) Nonpolar molecule
B) Excellent solvent
C) High heat of vaporization
D) High specific heat

**11. Name the term which is given for the movement of water through a semipermeable membrane?**

A) Diffusion
B) Osmosis
C) Tonicity
D) Transpiration

**12. What is the measure of the osmotic pressure gradient of solutions separated by a semipermeable membrane?**

A) Water potential
B) Ficks law
C) Turgor pressure
D) Tonicity

**13. Name the condition in which protoplast of the plant cell shrinks away.**

A) Turgid
B) Plasmolysis
C) Flaccid
D) Rigid

# UGTRB - BOTANY

Questions - UNIT-7 : TEST-2

**1. Osmosis is different from diffusion as:**

**A) Diffusion requires semi-permeable membrane**
**B) Osmosis requires a liquid solvent**
**C) Osmosis is a form of active transport**
**D) In osmosis, solute moves from lower concentration to higher**

**2. Rate of solid-state diffusion does not depend on which of the following?**

**A) Temperature**
**B) Diffusing species**
**C) Host solid**
**D) Gravity**

**3. Diffusion is not used in which of the following?**

**A) Doping of semiconductors**
**B) Manufacturing of alloys**
**C) Heat treatment of metals**
**D) Catalysis**

**4. Carburisation is a heat treatment used for case hardening steels. Carbon is trapped on steel surface by:**

**A) Osmosis**
**B) Interstitial diffusion**
**C) Vacancy diffusion**
**D) None of the mentioned**

**5. You want to demonstrate the phenomenon of diffusion to a group of school kids using two coloured gases. For this, you need to slow down the process. Which of the following tricks will help you achieve this feat?**

**A) Cooling the gases**
**B) Using gases of large molecular weights**
**C) Decreasing the size of orifice**
**D) All of the mentioned**

**6. In steady state diffusion, which of the following remain unchanged with time?**

**A) Concentration at source**
**B) Concentration at sink**
**C) Concentration profile**
**D) All of mentioned**

**7. For steady-state diffusion, diffusion flux is proportional to the concentration gradient. Concentration gradient is:**

**A) Rate of change of concentration with respect to**
**B) space**
**C) Rate of change of concentration with respect to time Difference in concentrations at the source and sink**
**D) Ratio of concentrations at source and sink**

**8. Which of the following is not true for steady-state diffusion?**

**A) The concentration profile is linear**
**B) The concentration gradient is constant**
**C) There is no net transfer of mass**
**D) The diffusion flux is constant**

**9. Concentration of hydrogen gas across a 2mm thick palladium sheet differs by 4 kg/$m^3$. Considering steady-state diffusion with diffusion constant $10^{-10}$ $m^2$/s, diffusion flux is _____ kg/$m^2$.s:**

**A) 2 x $10^{10}$**
**B) 2 x $10^{-10}$**
**C) 5 x $10^{-11}$**
**D) 5 x $10^{9}$**

**10. The expression J = M/t), where J, M, A, & t are diffusion flux, mass of diffusing species, cross sectional area, and time respectively is:**

**A) incorrect**
**B) valid for steady-state diffusion only**
**C) valid for non steady state diffusion only**
**D) valid for both steady and non steady state diffusion**

**11. The relation between temperature and diffusion coefficient is:**

**A) Linear**
**B) Exponential**
**C) Sinusoidal**
**D) Diffusion coefficient is not related to temperature**

**12. The basis of reverse osmosis is _____**

**A) Osmotic pressure is greater than the hydrostatic pressure**
**B) Osmotic pressure is equal to the hydrostatic pressure**
**C) Hydrostatic pressure is greater than the osmotic pressure**
**D) Osmotic pressure does not exist**

# UGTRB - BOTANY

Questions - UNIT-7 : TEST-3

**1. Which of the following is required for the action of the nitrogenase enzyme?**

A) Light
B) High input of energy
C) Super oxygen radicals
D) $Mn^{2+}$

**2. Leghaemoglobin is present in the root nodules of legumes. What is the function of leghaemoglobin?**

A) Oxygen removal
B) Inhibition of nitrogenase activity
C) Expression of nif gene
D) Nodule differentiation

**3. An aquatic fern that performs nitrogen fixation is _____.**

A) Nostoc
B) Azolla
C) Salvinia
D) Salvia

**4. Which of the following is correct for nitrifying bacteria?**

A) They convert free nitrogen to nitrogen compounds
B) They oxidize ammonia to nitrates
C) They reduce nitrates to free nitrogen
D) They convert proteins into ammonia

**5. Which of the following prevents the inactivation of nitrogenase by oxygen?**

A) Cytochrome
B) Carotene
C) Xanthophyll
D) Leghaemoglobin

**6. Nitrogen is absorbed by plants as _____.**

A) Nitrites
B) Ammonium
C) Nitrites
D) All of the above

**7. Industrial nitrogen fixation is carried out by _____.**

A) Friedel Crafts reaction
B) Helmonts process
C) Haber process
D) None of the above

**8. This element plays a key role in the nitrogen fixation.**

A) Manganese
B) Molybdenum
C) Zinc
D) Copper

**9. Cells where nitrogen fixation takes place in Nostoc are known as _____.**

A) Hormogonia
B) Heterocysts
C) Akinetes
D) Nodules

**10. Which of the following statements is correct?**

A) Atmosphere is the major reservoir for plants
B) Nitrogen is the most abundant nutrient for plants
C) Nitrogen cycle is a sedimentary cycle
D) All

**11. Nitrogen is absorbed by the plants in the form of**

A) Ammonium
B) Nitrites
C) Nitrates
D) All

**12. Nitrogen fixation is the conversion of**

A) $N_2$ to N
B) $N_2$ to $NH_3$
C) $N_2$ to $NO_3^-$
D) $N_2$ to urea

**13. Important enzymes involved in nitrogen fixation are**

A) Nitrogenase and hydrogenase
B) Nitrogenase and hexokinase
C) Nitrogenase and peptidase
D) Nitrogenase and hydrolyase

# UGTRB - BOTANY

Questions - UNIT-8 : TEST-1

**1. In the given list, which is the simplest amino acid?**

A) Alanine
B) Glycine
C) Tyrosine
D) Asparagine

**2. Animal cells are interconnected by _____**

A) Desmosomes
B) Cell wall
C) Plasmodesmata
D) Plasma membrane

**3. Polythene chromosomes are found because of _____?**

A) Endomixes
B) Mitosis
C) Meiosis
D) Endomitosis

**4. The rRNA is synthesized by _____**

A) Golgi body
B) Nucleus
C) Nucleolus
D) Cytoplasm

**5. Which of the following is known as mitoplast?**

A) Mitochondria without outer membrane
B) Another name for mitochondria
C) Mitochondria without membranes
D) Mitochondria without inner membrane

**6. The Lipid drugs' detoxification including the other harmful compounds of various types in the ER is carried out by _____?**

A) Cytochrome F
B) Cytochrome bf
C) Cytochrome P450
D) Cytochrome D

**7. Sodium and potassium pumps are examples of _____**

A) Plasmolysis
B) Active transport
C) Passive transport
D) Osmosis

**8. The histone octamer contains _____?**

A) 5 types of histones
B) 6 types of histones
C) 8 types of histones
D) 8 histones of four different types

**9. Centriole takes part in the formation of _____?**

A) Nucleus
B) Spindle
C) Cell plate
D) To start cell division

**10. Which of the below option is/are examples of an organ that contain a smooth muscle?**

A) Uterus only
B) Iris of eye
C) Bronchi only
D) All of the above

**11. The Major difference between the human cheek cells and onion peel cells is _____?**

A) Presence of mitochondria in onion peel
B) Absence of plasma membrane in cheek cells
C) Cell wall presence in onion peel cells
D) Absence of endoplasmic reticulum in cheek cells

**12. An organelle that mainly serves as a packaging area for molecules that are distributed across the cell and are called ____?**

A) Golgi apparatus
B) Mitochondria
C) Plastids
D) Vacuole

**13. The cell theory is not applicable to-**

A) Fungi
B) Microbes
C) Algae
D) Virus

# UGTRB - BOTANY

Questions - UNIT-8 : TEST-2

**1. Which of the following enzyme present in the rough endoplasmic reticulum removes the signal sequence from nascent polypeptides?**

A) signal oxidase
B) signal peptidase
C) olisaccharyltransferase
D) luciferase

**2. The cysteine residues present in the reduced form in peptides that enter the endoplasmic reticulum lumen are converted into _____ when they leave the compartment.**

A) ) hydrolyzed bonds
B) hydrophobic bonds
C) disulfide bonds
D) hydrophilic bonds

**3. Hydrophobic transmembrane segments of which proteins are not synthesized in the endoplasmic reticulum?**

A) integral membrane proteins
B) lysosomal proteins
C) steroids
D) secretory proteins

**4. Glycolipids are synthesized in the ER and _____**

A) Nucleus
B) Golgi complex
C) Mitochondrion
D) Plasma membrane

**5. Which of the following together represent an endomembrane system?**

A) macromolecules of the cell
B) cell receptors
C) cytoplasmic structures
D) nuclear structures

**6. Proteins are synthesized in which of the following organelle of the endomembrane system?**

A) Endoplasmic reticulum
B) Golgi complex
C) Lysosomes
D) Vacuoles

**7. There are _____ types of secretory activities of a cell.**

A) one
B) two
C) three
D) four

**8. . In regulated secretion, materials are _____**

A) secreted
B) stored
C) degraded
D) aggregated

**9. Which type of endomembrane secretion occurs in nerve cells?**

A) constitutive
B) regulatory
C) non-continuous
D) intermittent

**10. What of the following molecules is not transported through the secretory pathway of endomembrane system?**

A) nucleic acids
B) complex polysaccharides
C) proteins
D) lipids

**11. Which of the following biomolecules are contained in the lysosomes?**

A) nucleic acids
B) ribonucleic acids
C) proteins
D) polysaccharides

**12. Which type of signals direct the proteins to their appropriate cellular destinations?**

A) sorting signals
B) apoptotic signals
C) ubiquitylation
D) degradation signals

**13. DNA filaments that develop inside the nucleus during cell division?**

A) Spindle fibres
B) Chromosomes
C) Centrioles
D) Asters

# UGTRB - BOTANY

Questions - UNIT-8 : TEST-3

**1. What is the process of vegetative propagation in plants?**

A) Reproduction through seeds
B) Reproduction through spores
C) Reproduction through vegetative structures such as bulbs, rhizomes, and roots
D) Reproduction through flowers

**2. Which of the following is an example of vegetative propagation in plants?**

A) A seed germinating and growing into a new plant
B) A bulb producing new bulbs
C) A root cutting producing new roots
D) A flower producing pollen

**3. Which of the following is NOT a method of vegetative propagation in plants?**

A) Grafting
B) Layering
C) Pollination
D) Cuttings

**4. What is the advantage of vegetative propagation in plants?**

A) It allows for genetic variation in the offspring
B) It ensures the exact replication of the parent plant
C) It allows for the production of seeds
D) It allows for the production of spores

**5. What is the process of layering in vegetative propagation?**

A) A stem is bent and buried in soil, where it will form roots
B) A stem is cut and inserted into another plant
C) A stem is grafted onto a rootstock
D) A stem is pollinated by another plant

**6. Factors not considered for establishing a nursery is/are?**

A) Soil type and soil pH.
B) Location and area.
C) Germplasm and skilled persons.
D) All are necessary factors.

**7. Product choice of a nursery for wider market coverage area primarily depends on….?**

A) Market studies.
B) Farm labour.
C) Inputs.
D) Transportation.

**8. Cuttings are made from..?**

A) Stems and leaves.
B) Tubers and corms.
C) Rhizomes and bulbs.
D) All of the above.

**9. . …. is/are raised by layering?**

A) Carnation.
B) Chrysanthemum.
C) Both a and b.
D) None of the above.

**10. Which propagation method is seldom used in propagation of ornamental plants?**

A) Cutting.
B) Grafting.
C) Budding.
D) Division

**11. By what name is kitchen garden also known as?**

A) Home garden
B) Nutrition garden
C) Vegetable garden
D) All of the above

**12. Which is the main feature of the French Intensive Garden?**

A) Raised bed
B) Cole crops plantation
C) Irrigation system
D) All of the above

**13. By what name is kitchen garden also known as?**

A) Home garden
B) Nutrition garden
C) Vegetable garden
D) All of the above

# UGTRB - BOTANY

Questions - UNIT-9 : TEST-1

**1. Which of the following is known as an edaphic abiotic factor?**

A) Light
B) Soil
C) Air
D) Water

**2. Which of the following is known as a topographic abiotic factor?**

A) Earth's surface
B) Wind
C) Temperature
D) Humidity

**3. What is the temperature at hydrothermal sea vents?**

A) 50°C
B) 110°C
C) 25°C
D) 0°C

**4. Which animal is not found in the forests of Kerala?**

A) Cow
B) Bats
C) Cat
D) Snow leopard

**5. Which one of the following is an abiotic factor?**

A) Animals
B) Plants
C) Humidity
D) Fungi

**6. What are plants growing at high temperatures alternatively called?**

A) Mesotherms
B) Megatherms
C) Microtherms
D) Conifers

**7. What are plants growing in high-low temperature called?**

A) Microaerophils
B) Megatherms
C) Microtherms
D) Mesotherms

**8. What are plants growing at low temperatures called?**

A) Mesotherms
B) Megatherms
C) Microtherms
D) Shrubs

**9. What are plants growing at very low temperatures called?**

A) Mesotherms
B) Microtherms
C) Megatherms
D) Hekistotherms

**10. Which is a universal solvent?**

A) Alcohol
B) Ether
C) Water
D) Benzene

**11. What are plants growing in an aquatic environment called?**

A) Mesotherms
B) Hydrophytes
C) Tropical
D) Microtherms

**12. Which one of the following is a problem for aquatic animals?**

A) Wind
B) Precipitation
C) Humidity
D) Endo osmosis

**13. Organisms that can tolerate a wide range of salinities are called?**

A) Euryhaline
B) Mesotherms
C) Temperate
D) Stenohaline

# UGTRB - BOTANY

Questions - UNIT-9 : TEST-2

**1. Why are the trophic levels is in the shape of pyramid?**

A) Due to loss of energy between the trophic level
B) Due to good looking
C) Due to increase of energy between the trophic level
D) Due to stable energy between the trophic level

**2. Which pyramid is always upright apart from tree ecosystem?**

A) Pyramid of Number
B) Pyramid of Biomass
C) Pyramid of Energy
D) Pyramid of Force

**3. What is the exception to the upright pyramid of biomass?**

A) Temperate forests
B) Deserts
C) Aquatic ecosystems
D) Grassland ecosystems

**4. In an energy pyramid, which way does energy transfer occur?**

A) From both top to bottom and bottom to top of pyramid
B) From middle of pyramid
C) From top to the bottom of pyramid
D) From bottom to the top of pyramid

**5. Which of the following ecological pyramids is the most fundamental?**

A) Pyramid of energy
B) Pyramid of numbers
C) Pyramid of biomass
D) Pyramid of force

**6. How many types of ecological pyramids are there?**

A) One
B) Two
C) Three
D) Four

**7. What is called for the process of breaking down food to yield energy?**

A) Oxidation
B) Photosynthesis
C) Cellular respiration
D) Decomposition

**8. What are called for an organisms which get energy by eating dead organisms?**

A) Decomposers
B) Producers
C) Consumers
D) Herbivores

**9. Which among the following is a product of photosynthesis?**

A) Glucose
B) Carbon
C) Monoxide
D) Nitrogen

**10. What is called for an organism that eats both plants and animals?**

A) Omnivore
B) Carnivore
C) Decomposers
D) Herbivore

**11. Why energy flow is linear in an ecosystem?**

A) Because it flows in air medium
B) Because it is very particular
C) Because ecosystem is linear
D) Because energy flows from one trophic level to the next higher one

**12. Flow of nutrients is_____**

A) Unidirectional
B) Rectangular
C) Cyclic
D) Triangular

**13. Why plants in forests do not make use of all the light energy available to them?**

A) Because plants do not require energy
B) Because plants are grown only in the winter season
C) Because of the absence of chlorophyll
D) Because sunlight doesn't fall on the leaves fully

# UGTRB - BOTANY

Questions - UNIT-9 : TEST-3

**1. What is the purpose of image classification in remote sensing?**

**A)** To make images look more visually appealing

**B)** To identify and categorize specific features on the Earth's surface based on their spectral, spatial, and temporal characteristics

**C)** To remove noise from images to make them clearer

**D)** To enhance the contrast of an image to highlight specific features

**2. What is object-based image analysis in remote sensing image interpretation?**

**A)** The process of analyzing groups of pixels to identify patterns and features on the Earth's surface

**B)** The process of dividing an image into smaller, non-overlapping regions or segments based on similar characteristics

**C)** The process of analyzing the physical properties of the Earth's surface

**D)** The process of identifying and measuring changes in the physical properties of the Earth's surface over time

**3. What is image segmentation in remote sensing image interpretation?**

**A)** The process of dividing an image into smaller, non-overlapping regions or segments based on similar characteristics

**B)** The process of identifying and measuring changes in the physical properties of the Earth's surface over time

**C)** The process of analyzing individual pixels to identify features on the Earth's surface

**D)** The process of analyzing groups of pixels to identify patterns and features on the Earth's surface

**4. What is change detection in remote sensing image interpretation?**

**A)** The process of identifying and measuring changes in the physical properties of the Earth's surface over time

**B)** The process of analyzing individual pixels to identify features on the Earth's surface

**C)** The process of analyzing groups of pixels to identify patterns and features on the Earth's surface

**D)** The process of enhancing the contrast of an image to highlight specific features

**5. What is hyperspectral imaging in remote sensing?**

**A)** The use of sensors that capture data in many narrow, contiguous spectral bands, enabling detailed analysis of the Earth's surface and its constituents

**B)** The process of analyzing individual pixels to identify features on the Earth's surface

**C)** The process of analyzing groups of pixels to identify patterns and features on the Earth's surface

**D)** The process of combining high-resolution panchromatic black and white) data with lower-resolution multispectral data to create a single, high-resolution color image

**6. What is the purpose of radiometric calibration in remote sensing?**

**A)** To remove noise from images to make them clearer

**B)** To improve the accuracy and interpretability of images by removing atmospheric and sensor-related distortions

**C)** To decrease the resolution of images for faster processing

**D)** To make images look more visually appealing

**7. What is feature extraction in remote sensing image interpretation?**

**A)** The process of identifying and classifying specific features on the Earth's surface based on their spectral, spatial, and temporal characteristics

**B)** The process of analyzing individual pixels to identify features on the Earth's surface

**C)** The process of analyzing groups of pixels to identify patterns and features on the Earth's surface

**D)** The process of analyzing the physical properties of the Earth's surface

**8. What is pan-sharpening in remote sensing?**

**A)** The process of combining high-resolution panchromatic black and white) data with lower-resolution multispectral data to create a single, high-resolution color image

**B)** The process of smoothing out noise in an image to make it clearer and more visually appealing

**C)** The process of enhancing the contrast of an image to highlight specific features

**D)** The process of analyzing the physical properties of the Earth's surface

# UGTRB - BOTANY

Questions - UNIT-10 : TEST-1

**1. What is plant tissue culture?**

A) The technique of in vitro maintaining and growing cells
B) The technique of in vivo growing cells
C) The technique of growing plants in gardens
D) The technique of cutting plants

**2. Tissue culture technique was first practised by _____**

A) White
B) Haberlandt
C) Halperin
D) Skoog

**3. Which of the following scientist was not responsible for developing somatic hybrids?**

A) Steward
B) Halperin
C) Wetherell
D) Skoog

**4. What is an explant?**

A) A part of plant grown under soil
B) Any part of a plant taken out and grown in a test tube
C) A specific part of a plant grown in a test tube
D) Leaves grew under test tube

**5. Essential requirement of an artificial medium in which explant is being regenerated is _____**

A) the medium should have a sulphur source
B) the medium should have very low carbon concentration
C) the medium must provide a carbon source
D) the medium must provide a nitrogen donor

**6. What are somaclones?**

A) Plants chemically identical to the original plant
B) Plants morphologically identical to the original plant
C) Plants anatomically identical to the original plant
D) Plants genetically identical to the original plant

**7. Which of the following plant part is free from the attack of the virus?**

A) Stem
B) Root
C) Meristem
D) Leaves

**8. Which of the following plant's meristem has not been successfully cultured?**

A) Banana
B) Apple
C) Sugarcane
D) Potato

**9. What is protoplast?**

A) Cell wall + Plasma membrane
B) Plant cell – cell wall
C) Cytoplasm + cell wall
D) Plasma membrane – cytoplasm

**10. What are somatic hybrids?**

A) Hybrid protoplasts
B) Protoplasts
C) Fused plasmids
D) Fused Chloroplast

**11. Which of the following is not related to embryo culture?**

A) Growth of embryos on culture medium
B) Developing seedlings
C) Multiplication of rare plants
D) Making virus-free plants

**12. Which of the following is not an application of tissue culture?**

A) Rapid Clonal Propagation
B) Somaclonal Variations
C) Embryo rescue
D) Transgenic plants

**13. The growth of plant tissues in artificial media is called_____**

A) Gene expression
B) Transgenesis
C) Plant tissue culture
D) Cell hybridization

# UGTRB - BOTANY

Questions - UNIT-10 : TEST-2

**1. Which of the following amino acid cannot be inserted to minimize the monomer interactions?**

A) Glutamate
B) Arginine
C) Lysine
D) Proline

**2. Engineered slow-acting insulin is not fully soluble at which of the following pH?**

A) pH 5.5
B) pH 5
C) pH 4
D) pH 7

**3. Find the odd one out with respect to engineered fast-acting insulins.**

A) Arginine
B) Aspartic acid
C) Histidine
D) Valine

**4. Which of the following is the trade name of engineered slow-acting insulin?**

A) Novorapid
B) Novolog
C) Novolin
D) Lantus

**5. Which of the following amino acid when inserted in the insulin chain significantly reduces the monomeric interactions?**

A) Methionine
B) Valine
C) Glycine
D) Glutamic acid

**6. Which of the following ion co-ordinates the oligomerization of three insulin dimers to form a hexamer?**

A) Sodium ions
B) Calcium ions
C) Copper ions
D) Zinc ions

**7. What is the regulation of a lac operon by a repressor known as?**

A) Neutral regulation
B) Positive regulation
C) Mixed regulation
D) Negative regulation

**8. Which of the following is the necessary condition for the entry of lactose into the cell?**

A) High level expression of lac operon
B) Low level expression of lac operon
C) Absence of lac operon in the cell
D) Absence of proteins in the cell

**9. Which of the following is responsible for the switching on and off of the lac operon?**

A) Lactose
B) Ethanol
C) Malate
D) Fructose

**10. What does the structural gene y) of a lac operon code for?**

A) β-galactosidase
B) Transacetylase
C) Permease
D) Glucagon

**11. Which polycistronic structural gene is regulated by a common promoter and regulatory gene?**

A) Trp operon
B) Lac operon
C) Ara operon
D) His operon

**12. Conversion of messages carried by mRNA into amino acid sequences is called_____**

A) Replication
B) DNA repair
C) Translation
D) Transcription

**13. The following set of RNA is required in the translation process except one, mark the INCORRECT?**

A) Si RNA
B) rRNA
C) mRNA
D) tRNA

# UGTRB - BOTANY

Questions - UNIT-10 : TEST-3

**1. The yield of the antibiotic depends upon _____.**

A) Age of the inoculum
B) Only the pH of the medium
C) Composition of the medium
D) All of the above

**2. In Penicillium chrysogenum, the maximum antibiotic production occurs during the _____.**

A) The second phase
B) The third phase
C) First phase
D) In all three phases

**3. Antibiotics are used to treat infections by**

A) Virus
B) Bacteria
C) All the microorganisms
D) None of the above

**4. Which of the following fermentation processes is used in the production of penicillin?**

A) Aerobic fermentation followed by anaerobic fermentation
B) Anaerobic fermentation
C) Aerobic fermentation
D) Anaerobic fermentation followed by aerobic fermentation

**5. After the fermentation process, penicillin is recovered as**

A) Penicillin
B) Sodium penicillin
C) Calcium penicillin
D) Potassium penicillin

**6. In Which of the Following Substances is Chlortetracycline Soluble:**

A) Water
B) Ether
C) Organic solvents
D) All of the above

**7. Cell-wall Biosynthesis is Inhibited by Antibiotics by Inhibiting the Biosynthesis of Which of the following?**

A) lipopolysaccharide
B) cellulose
C) peptidoglycan
D) proteins

**8. Bacterial Cells Grown in a Medium Exposed to High Osmotic Pressure, Changes Shape from Rod-shaped to _____ Shaped.**

A) spherical
B) rod-shaped
C) irregular
D) elongated

**9. Which Among of the Following Antibiotics Act as Folate Antagonist:**

A) Penicillin
B) Tetracycline
C) Trimethoprim
D) Cefotaxime

**10. Which Among the Following Antibiotics Function as Protein Synthesis Inhibitors:**

A) Penicillin
B) Tetracycline
C) Cefotaxime
D) Trimethoprim

**11. Lac operon is an example of**

A) only positive regulation
B) only negative regulation
C) both positive and negative regulation
D) sometimes positive sometimes negative

**12. In the presence of lactose, how long does it take for the lac operon to be expressed?**

A) when lactose equals glucose concentration
B) when glucose is more than lactose concentration
C) as long as lactose is more than glucose concentration
D) as long as lactose is more than galactose concentration

**13. Which of these acts as an inducer of the lac operon?**

A) Allolactose
B) Lactose
C) Galactose
D) Glucose

**96. Cybrids are produced by**

**A) The nucleus of one species but cytoplasm from both the parent species**

**B) The fusion of two same nuclei from the same species**

**C) The fusion of two different nuclei from different species**

**D) None of the above**

**97. Which of the following mediums is composed of chemically defined compounds?**

**A) Natural media**

**B) Artificial media**

**C) Synthetic media**

**D) None of the above**

**98. 18. Which of the following chemicals are most widely used for protoplast fusion?**

**A) Mannitol**

**B) Polyethylene glycol**

**C) Sorbitol**

**D) Mannol**

**99. 19. Which of the following plant cells shows totipotency?**

**A) Cork cells**

**B) Meristem**

**C) Sieve tube**

**D) Xylem vessels**

**100. 20. What is Callus?**

**A) Tissues that grow to form an embryoid**

**B) An unorganised actively dividing the mass of cells maintained in a culture**

**C) An insoluble carbohydrate**

**D) A tissue that grows from an embryo**

**இந்த புத்தகத்தில் உள்ள வினாக்களுக்கான விடைகள் மற்றும் விளக்கங்களை காண உடனே *TCA App*-ஐ *Download* செய்யவும்**

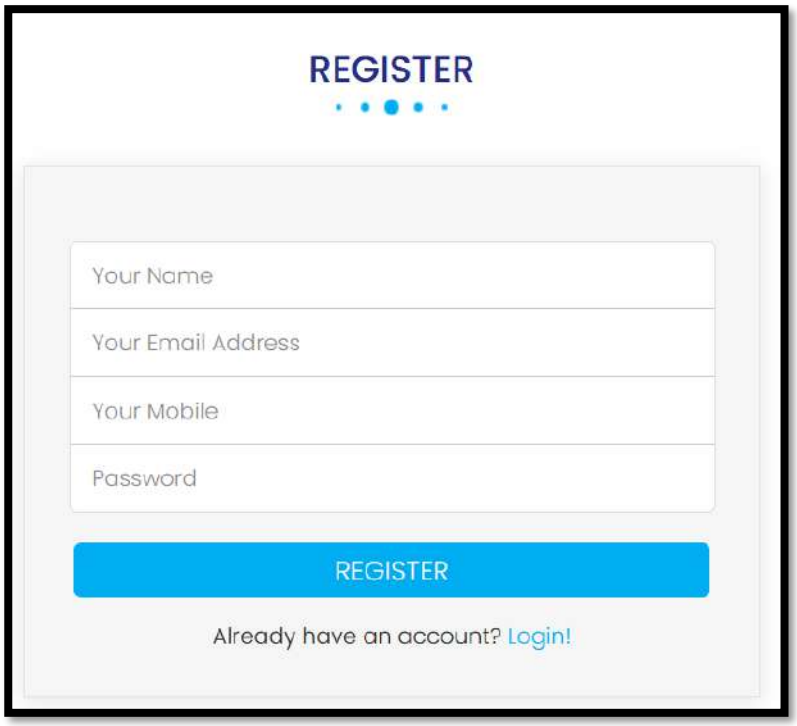
## App Name: tcaexamguide

***Step 1: Download and Install our mobile App (tcaexamguide) from Playstore***

***Step 1: Playstor-ல் இருந்து TCA-வின் mobile App (tcaexamguide)-* ஐ பதிவிறக்கம் செய்து கொள்ளவும்.**

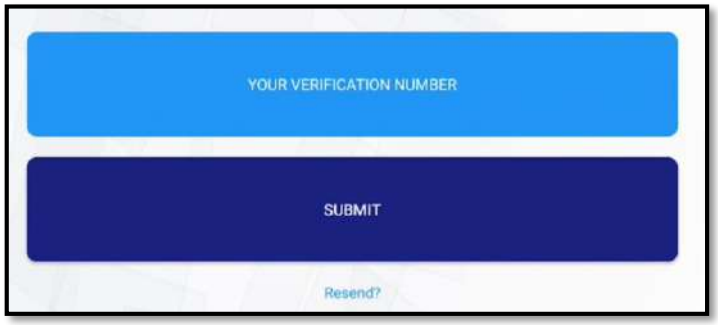

***Step 2: Register in our App by giving your Name, E-Mail id and Phone Number, Password (as your wish) and Click Register button.***

***Step 2 : உங்களுடைய பெயர், மின்னஞ்சல் முகவரி, அலைபேசி எண், மற்றும் நீங்கள் விருப்பப்பட்ட Password TCA-வின் Mobile App-ல் கொடுத்தபின் Register Button-ஐ Select செய்யவும்.***



***Step 3: Type the OTP in "Your Verification Number" box (the OTP is sent to the given Phone number).***

***Step 3: உங்கள் பதிவு செய்த அலைபேசி எண்ணிற்கு அனுப்பப்பட்ட OTP-ஐ "Your Verification Number" என்ற box-இல் கொடுக்கவும்.***




***Step 4 : Select the Option Get Started.***

***Step 4 : Get Started என்ற Option-ஐ தேர்ந்தெடுக்கவும்.***


***Step 5: Choose the Exam Name.***

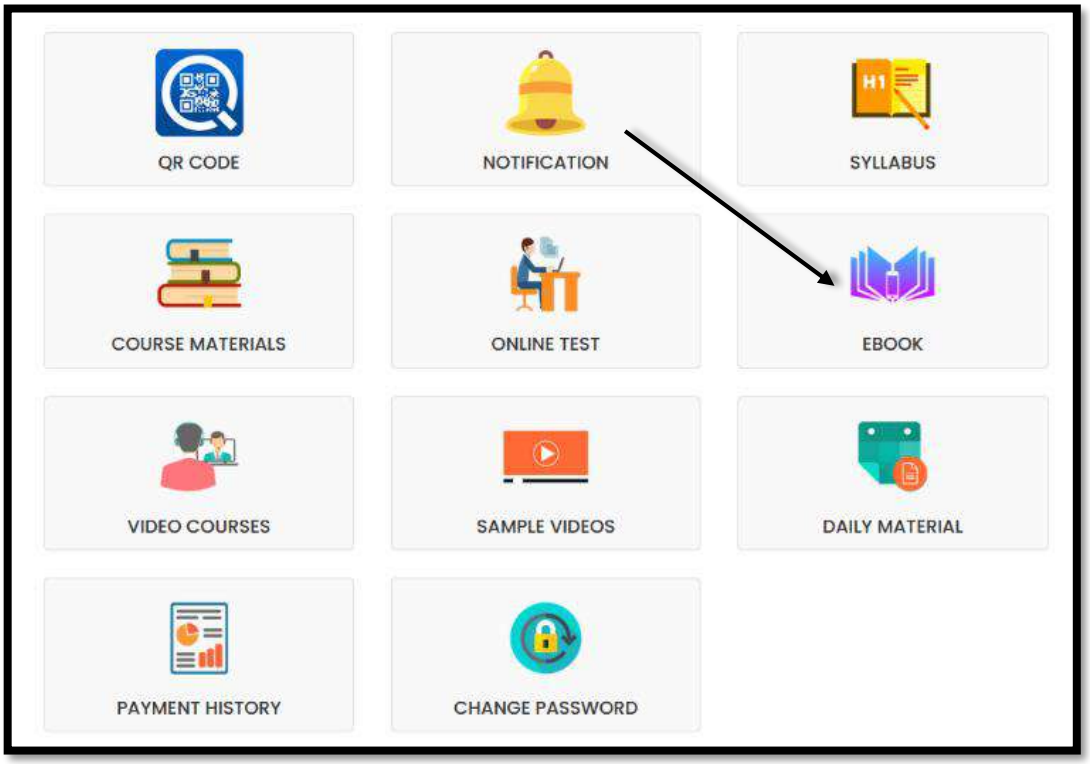
***Step 5: எந்த தேர்வு என்பதை தேர்ந்தெடுக்கவும்.***

***Step 6: Choose the Subject.***

***Step 6: எந்த Subject என்பதை தேர்ந்தெடுக்கவும்.***

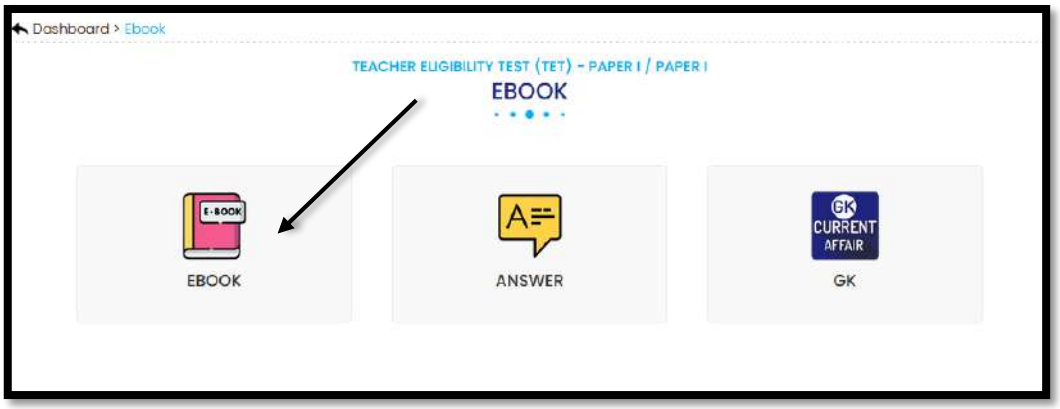

***Step 7: Select E- Book.***

***Step 7: E- Book என்ற Option-ஐ தேர்ந்தெடுக்கவும்.***



***Step 8: Select Again E-Book Option.***

***Step 8: மீண்டும் E- Book என்ற Option-ஐ தேர்ந்தெடுக்கவும்.***

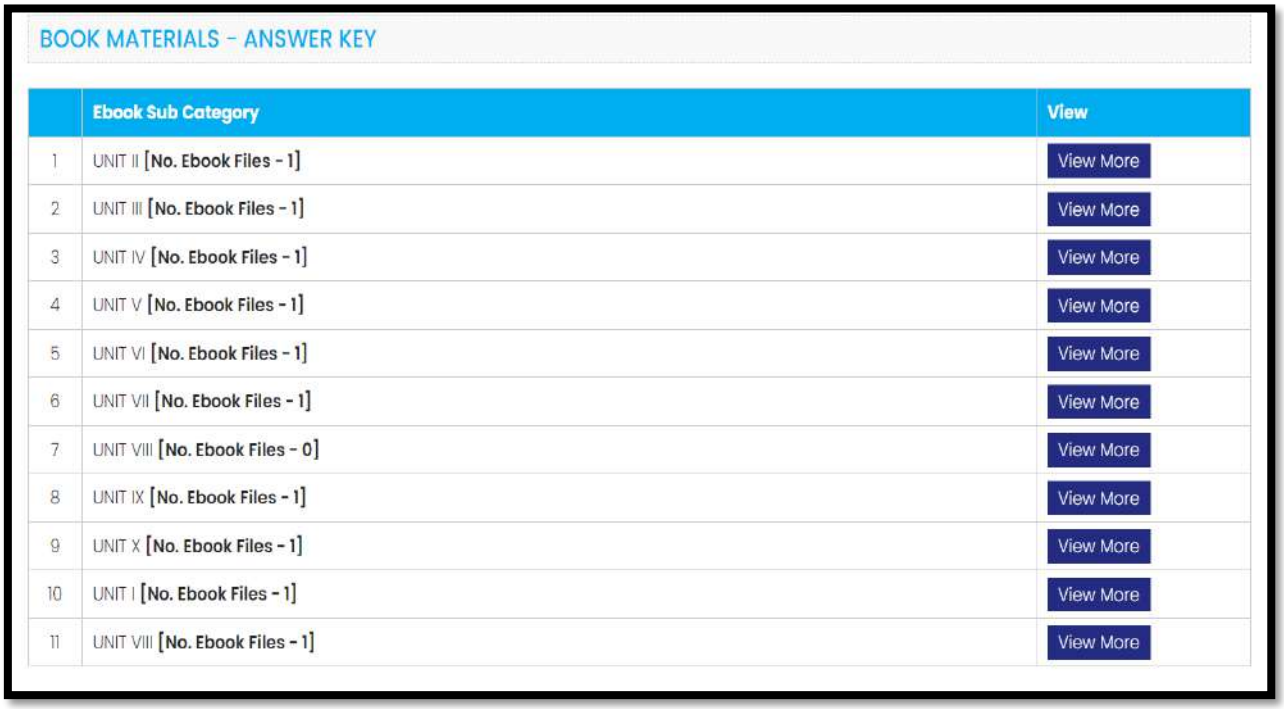



***Step 8: Select View More Option.***

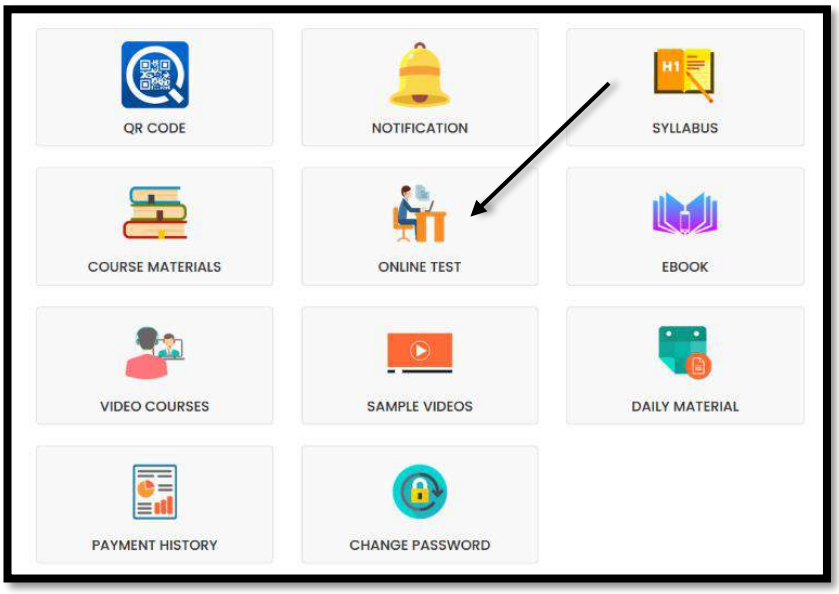
***Step 8: View More என்ற Option-ஐ தேர்ந்தெடுக்கவும்***

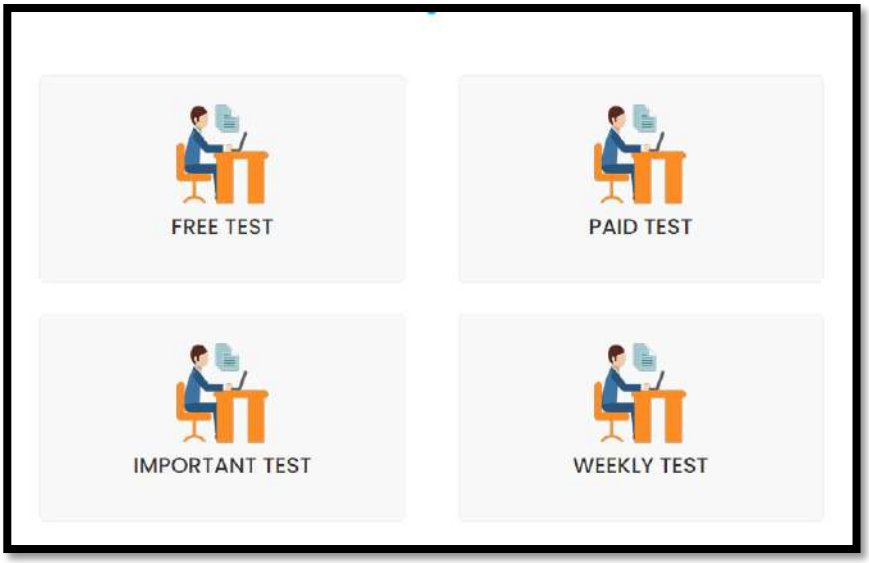

***Step 9: After choosing View More Option its Display Units Wise Answer key***

***Step 9: View More Option-ஐ தேர்ந்தெடுத்த பின் அலகு வாரியான விடைகள் மற்றும் விளக்கங்கள் Screen-ல் தெரியும் இதை உங்கள் Q.Bank புத்தகத்துடன் நீங்கள் சரிபார்த்துக் கொள்ளலாம்***



மேலும் TCA வழங்கும் முழு மாதிரி தேர்வுகளை (full Test) எழுத - Online Test என்ற ஆப்ஷனை தேர்வு செய்து எழுதலாம்

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TCA வழங்கும் Online தேர்வுகளை எழுதுவதற்கு கீழே கொடுக்கப்பட்டுள்ள எண்களை தொடர்புகொள்ளவும்.

95665 35080, 76399 67359, 93602 68118, 6369036346

# Thank You...

TEACHER'S CARE ACADEMY