


<b>2016-2017</b> <b>ADMISSION TEST</b> <b>M. Sc. BOTANY</b>	<b>PARTICULARS TO BE FILLED IN BY THE CANDIDATE</b>
	1. Name of the Centre: <u>Dept. of Chemistry</u> 2. Date of the Test: <u>11-6-16</u> 3. Roll No. (In Figures): <u>143241</u> 4. Name of the Candidate: <u>Sumayya Shamim</u> 5. Name of the Candidate's Father: <u>Mohd. Shamim Ansari</u> 6. Name of the Candidate's Mother: <u>Rahat Shamim</u>  Signature of the Candidate: <u>Sumayya</u>

  
 11/6/16

Signature of the Invigilator

Time: 2 Hours

Maximum Marks: 200

#### INSTRUCTIONS TO CANDIDATE

1. All questions are compulsory. There are two sections. In Section 'A' each question is followed by four alternatives. Select one most appropriate answer and mark the same on the OMR answer sheet. Section 'B' is short answer questions. Write answer in the last pages of question booklet.
2. Use only ball point pen for marking the correct answers on the OMR Answer Sheet.
3. Do not put any other marks in any part of the OMR Answer Sheet.
4. OMR Answer Sheet must be handled very carefully. It should not be folded.
5. Incorrect Answer to a question shall result in a negative score of 25 percent of the marks allotted to the question.
6. No request for re-evaluation/re-totalling will be entertained.
7. The candidate appearing at this Test has to abide by all the rules framed from time to time by the University.
8. Violation of any of these instructions will result in cancellation of whole Admission Test of the candidate.
9. The candidates resorting to unfair means in the Admission Test shall be dealt with as per the University rules.

# Amu Updates

M.Sc. Botany 2016-17  
Section A  
(Multiple Choice Questions)

1. Coliphage X 174 contains :  
a) Single stranded RNA  
b) Single stranded DNA  
c) Double stranded RNA  
d) Double stranded DNA
2. Endosperm is not found in:  
a) Annonaceae  
b) Loranthaceae  
c) Trapaceae  
d) Acanthaceae
3. Tetrasporic embryosac is :  
a) Oenothera type  
b) Allium type  
c) Endymion type  
d) Adoxa type
4. Exine sculpturing of mature pollen is of great importance in:  
a) Physiological studies  
b) Mitotic studies  
c) Taxonomic studies  
d) Pollination
5. The most widely used chemical for protoplast fusion, as fusogen, is :  
a) Polyethylene glycol (PEG)  
b) Sorbitol  
c) Dimethyl sulfoxide  
d) Mannitol
6. The endosperm in gymnosperms is:  
a) Haploid  
b) Diploid  
c) Triploid  
d) Polyploid
7. The male gametophyte of *Pinus* is :  
a) 10 celled  
b) 6 celled  
c) 4 celled  
d) 2 celled
8. The transfusion tissue is present in the leaves of :  
a) *Dryopteris*  
b) *Cycas*  
c) *Pinus*  
d) *Cycas* and *Pinus*

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9. *Ephedra* resembles with the in : *Angiosperm*  
a) Presence of archegonia  
b) Ciliated sperms  
c) Presence of bi-integument ovules  
d) None of the above
10. Perianth is found in :  
a) *Pinus*  
b) *Cedrus*  
c) *Cycas*  
d) *Ephedra*
11. Which of the following books deals with rules of nomenclature?  
a) The Families of Flowering Plants  
b) *Theorie elementaire de la botanique*  
c) *Hortus uplandicus*  
d) British Flowering Plants
12. Which of the following is considered as starting date for the nomenclature of angiosperms?  
a) May 01, 1735  
b) May 01, 1753  
c) May 10, 1753  
d) May 10, 1735
13. Which of the following statements is correct regarding the families *Caesalpiniaceae* and *Fabaceae*?  
a) These families can be distinguished on the basis of flower symmetry  
b) These families cannot be distinguished on the basis of corolla characters  
c) These families can be readily distinguished by leaf characters  
d) These families can be readily distinguished by androecium characters
14. Select the correct statement:  
a) Gynoecium is 2- carpellary and ovary is superior in the family *Apiaceae*  
b) Families *Convolvulaceae* and *Solanaceae* can be distinguished on the basis of number of ovules  
c) Members of the family *Papaveraceae* are predominantly woody  
d) Bentham and Hooker's system place the families *Apocynaceae* and *Asclepiadaceae* in different orders
15. A laticiferous herbaceous climber has complete, actinomorphic flower, gamopetalous corolla, free pollen grains, and two ovules per locule. It can be most appropriately assigned to the family:  
a) *Asclepiadaceae*  
b) *Euphorbiaceae*  
c) *Acanthaceae*  
d) *Convolvulaceae*
16. Select the correct statement :  
a) Coprophagy plays a central role in grazing food chains  
b) Detritivores consume living producers

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- c) On an average greater amount of energy flows through the detritus food chain in most of natural ecosystems  
d) Grazing and detritus food chains cannot operate in the same ecosystem.
17. Which of the following is not true for a climax community?  
a) The term was introduced by P.E. Clements in 1916  
b) It represents final stage of ecological succession  
c) If not subjected to major perturbation a climax community is self-perpetuating  
d) In a climax community  $P > R$
18. Foli or Fimbriae are found generally in :  
a) Gram - negative bacteria  
b) Gram - positive bacteria  
c) Both in Gram - positive and Gram - negative bacteria  
d) Neither in Gram - positive nor in Gram - negative bacteria
19. *Pilobolus* is a :  
a) Coprophilous fungus  
b) Downy mildew fungus  
c) Powdery mildew fungus  
d) Fungus causing a disease on linseed
20. Cleistothecium is formed in:  
a) *Talaromyces*  
b) *Peziza*  
c) *Mycosphaerella*  
d) *Pleospora*
21. *Opidium* is basically a :  
a) Unicellular fungus  
b) Mycelium forming fungus  
c) Pseudomycelial fungus  
d) Fungus forming different types of thalli
22. Pseudoparenchymatous aggregation of hyphae which develop beneath the surface of a host plant is known as :  
a) Sporodochium  
b) Pyrenidium  
c) Acervulus  
d) Synnema
23. Flash method of pasteurization is also known as :  
a) High temperature short time method  
b) Low temperature long time method  
c) Standard plate count method  
d) Breed count method
24. *Puccinia* belongs to the order:  
a) Eurotiales  
b) Peronosporales  
c) Uredinales  
d) Aphyllophorales
25. Soft tissues are aliform confluent type in the wood of:  
a) Shisham  
b) Teak  
c) Kail  
d) None of these
26. Asexual fructification - Sporodochium is found in:  
a) *Fusarium*  
b) *Colletotrichum*  
c) *Claviceps*  
d) *Cercospora*
27. The anal and vulval openings in nematodes are located on:  
a) Dorsal side  
b) Ventral side  
c) Lateral side  
d) Dorso - lateral side
28. The class - Teliomycetes belongs to the Subdivision:  
a) Basidiomycotina  
b) Zygomycotina  
c) Deuteromycotina  
d) Ascomycotina
29. Carbon, hydrogen, oxygen and nitrogen are elemental constituents of:  
a) Carbohydrate  
b) Protein  
c) Fat  
d) Alcohol
30. The theory that suggests that the  $\text{CO}_2$  produced in respiration plays an important role in mineral absorption is:  
a) Contact exchange theory  
b) Carbonic acid exchange theory  
c) Active absorption theory  
d) Donnan's equilibrium theory
31. Grana refers to:  
a) Glycolysis of glucose  
b) Stacks of thylakoids  
c) By-product of photosynthesis  
d) A constant in quantum equation
32. The correct molecular formula for Chlorophyll a is:  
a)  $\text{C}_{55} \text{H}_{70} \text{O}_5 \text{N}_4 \text{Mg}$   
b)  $\text{C}_{55} \text{H}_{70} \text{O}_6 \text{N}_4 \text{Mg}$   
c)  $\text{C}_{55} \text{H}_{72} \text{O}_5 \text{N}_4 \text{Mg}$   
d)  $\text{C}_{55} \text{H}_{72} \text{O}_6 \text{N}_4 \text{Mg}$
33. Which is not a physiological change related to photoperiodism?  
a) Seed germination

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- b) Root branching  
 c) Breaking bud dormancy  
 d) Some flowering
34. Which of the following hormone is of fungal origin?  
 a) Auxin  
 b) Gibberellic acid  
 c) Cytokinin  
 d) ABA
35. The hormone reducing transpiration rate by inducing stomatal closure is:  
 a) ABA  
 b) Ethylene  
 c) Cytokinin  
 d) Auxin
36. The 10% energy transfer law of food chain was given by:  
 a) Lederberg  
 b) Lindeman  
 c) Weismann  
 d) Lindley
37. Reaction center of Photosystem-I in green plants is:  
 a)  $P_{680}$   
 b)  $P_{690}$   
 c)  $P_{700}$   
 d)  $P_{780}$
38. The concept of water potential was proposed by:  
 a) Godlewski  
 b) Slatyer and Taylor  
 c) Dixon and Jolly  
 d) J. C. Bose
39. Moll's experiment explains that  
 a) Carbon dioxide is essential for photosynthesis  
 b) Chlorophyll and water are necessary for photosynthesis  
 c) Light and water are essential for photosynthesis  
 d) All of the above
40. The dominant phase in Bryophytes is :  
 a) Sporophytic phase  
 b) Gametophytic phase  
 c) Intercalary phase  
 d) Intermediate phase
41. Apospory does not take place in :  
 a) *Marchantia*  
 b) *Anthoceros*  
 c) *Funaria*  
 d) *Sphagnum*
42. Air pores in *Marchantia* are surrounded by :  
 a) One tier of four cells  
 b) Two tiers of five cells  
 c) Three tiers of four to five cells  
 d) Four tiers of four to five cells
43. Which of the following species of *Anthoceros* is annual?  
 a) *Anthoceros himalayensis*  
 b) *Anthoceros erectus*  
 c) *Anthoceros chambensis*  
 d) *Anthoceros laevis*
44. The formation of sporophyte from vegetative part of a prothallus is called:  
 a) Apogamy  
 b) Apospory  
 c) Endosperm  
 d) Mesocarp
45. A microspore mother cell forms:  
 a) Pollen sac  
 b) An ovule  
 c) Pollen grains  
 d) Embryo sac
46. Bagging is done to:  
 a) Avoid damage of flowers  
 b) Avoid self pollination  
 c) Avoid insects from eating flowers  
 d) Prevent contamination from foreign pollen
47. Genic Balance Theory of sex determination was given by:  
 a) Gregor J. Mendel  
 b) C. B. Bridges  
 c) J. Koelreuter  
 d) Darwin
48. Exposure of plants to ethylene causes drooping of leaves and flowers, this phenomenon is known as:  
 a) Hyponasty  
 b) Epinasty  
 c) Nyctinasty  
 d) None of the above
49. The pH of most plant vacuoles is:  
 a) Mildly acidic  
 b) Mildly basic  
 c) Highly acidic  
 d) Highly basic
50. Human insulin is commercially obtained from a transgenic organism produced from:  
 a) *Bacillus*  
 b) *Pseudomonas*



- c) *Escherichia*  
 d) *Aspergillus*

51. Interferon is

- a) Enzyme  
 b) Glycoprotein  
 c) Hormone  
 d) Lipid

52. Which statement is wrong?

- a) Artificial gene could be produced from mRNA by enzyme reverse transcriptase  
 b) Artificial gene is referred as complementary DNA (cDNA)  
 c) Artificial gene is longer than natural gene because it does not have introns  
 d) Artificial gene is useful when very specific proteins are formed

53. PCR was developed by Kary Mullis who got Noble Prize for the same in:

- a) 1953  
 b) 1963  
 c) 1983  
 d) 1993

54. The most important auxin for somatic embryoid induction is:

- a) IAA  
 b) IBA  
 c) NAA  
 d) 2,4-D

55. When a transgene is introduced into the genome of an organism, which one of the following cannot be achieved.

- a) Produces a protein that is product in which one is interested  
 b) Produces a protein that on its own produces the desired phenotype  
 c) Modifies an existing biosynthetic pathway so that a new product is obtained  
 d) Enhanced expression of existing native gene

56. Amphiphilic siphonostele is found in

- a) *Selaginella*  
 b) *Marsilea*  
 c) *Dryopteris*  
 d) *Pteris*

57. Which of the following theory of root apex is based on pattern of cell division?

- a) Apical cell theory  
 b) Tunica corpus theory  
 c) Korper - Kappe theory  
 d) Histogen theory

58. Which of the following theory of shoot apex is best fitting to a group of cryptogams?

- a) Histogen theory  
 b) Apical initial theory  
 c) Tunica - corpus theory  
 d) Cyto-histo-zonation theory

59. Whiptail disease of cauliflower plants is caused by deficiency of:

- a) Mo  
 b) B  
 c) Fe  
 d) Ni

60. The enzyme nitrogenase is extremely sensitive to:

- a) Oxygen  
 b) Nitrogen  
 c) Hydrogen  
 d) Chlorine

61. Which of the following has more energy per photon of light?

- a) UV light  
 b) Red light  
 c) Blue light  
 d) Infra-red light

62. Which of the following is not a component of mitochondrial electron transport system?

- a) Cytochrome C  
 b) Ubiquinone  
 c) Cytochrome  $b_6$   
 d) Cytochrome  $a$  and  $a_3$

63. Alga *Sarcomena furcellatum* can provide high content of:

- a) Iron  
 b) Magnese  
 c) Zinc  
 d) Copper

64. Red rust of tea is caused by:

- a) *Puccinia*  
 b) *Ustilago*  
 c) *Melampsora*  
 d) *Cephaleuros*

65. Frog spawn is the common name of:

- a) *Batrachospermum*  
 b) *Nemalion*  
 c) *Geldium*  
 d) *Corallina*

66. Name the organism which lacks archegonium:

- a) *Pteris*  
 b) *Funaria*  
 c) *Cycas*  
 d) *Spirogyra*

67. *Cetraria islandica* is a:

- a) Bryophyte  
 b) Pteridophyte

- c) Gymnosperm
  - d) Lichen
68. *Rocella* is commonly used as:
- a) Food
  - b) Colouring matter
  - c) Medicine
  - d) Biofertilizer
69. *Coxiella burnetti* is causal organism of:
- a) Tuberculosis
  - b) Brucellosis
  - c) Q Fever
  - d) Pneumonia
70. *Lacidia* is a :
- a) Crustose lichen
  - b) Foliose lichen
  - c) Fruticose lichen
  - d) Blue green alga

#### Section B – Descriptive Questions

Write answers of all questions

1. Describe the *Oenothera* type of embryo sac development.
2. Write short note on female cone of *Pinus*.
3. Write Koch's postulates and discuss its importance.
4. Discuss merits of chemical pesticides. Write the name of five pesticides used in India.
5. Write short note on Alternation of Generation in Bryophytes.
6. Define totipotency, and distinguish between growth, development and differentiation.
7. What is r-DNA technology and discuss its potential attributes.
8. Describe in brief about the stelar evolution in Pteridophytes.
9. Describe briefly the Korper-Kappe theory.
10. Describe the role of leg-haemoglobin in plants.

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DEPARTMENT OF BOTANY, ALIGARH MUSLIM UNIVERSITY,  
ALIGARH

2013-2014 ADMISSION TEST M. Sc. BOTANY	PARTICULARS TO BE FILLED IN BY THE CANDIDATE
	<ol style="list-style-type: none"><li>1. Name of the Centre: <u>Department of Botany (MSc F) 102</u></li><li>2. Date of the Test: <u>28-06-13</u></li><li>3. Roll No. (In Figures): <u>Three, five, zero, one, two, zero, four.</u></li><li>4. Name of the Candidate: <u>_____</u></li><li>5. Name of the Candidate's Father: <u>_____</u></li><li>6. Name of the Candidate's Mother: <u>_____</u></li></ol>

Time: 2 Hours

Maximum Marks: 200

Signature of the Invigilator

## INSTRUCTIONS TO CANDIDATE

1. All questions are compulsory. There are two Sections. In Section 'A' each question is followed by four alternatives. Select one of the answer which you consider as the most appropriate and mark the same on the OMR Answer Sheet provided to you. Section 'B' is short answer questions. Write answer in the space provided.
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8. Violation of any of these instructions will result in cancellation of whole Admission Test of the candidate.
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10. No extra sheets will be provided.

M.Sc. BOTANY 2013-14

SECTION 'A'

(Multiple Choice Questions)

1. A new transmissible and pathogenic agent is called:
  - (a) Viroid
  - (b) Virosoid
  - (c) Viroplasma
  - (d) Spiroplasma
2. Cell wall in Gram positive bacteria is composed of:
  - (a) Lipid and protein
  - (b) Murein
  - (c) Protein
  - (d) Cellulose and protein
3. Putrefying bacteria act upon:
  - (a) Protein
  - (b) Starch
  - (c) Fat
  - (d) Carbohydrate
4. Synzoospores are found in:
  - (a) *Anabaena*
  - (b) *Synedra*
  - (c) *Vaucheria*
  - (d) *Stigeoclonium*
5. Agar-agar is obtained from:
  - (a) *Gonium*
  - (b) *Gigantina*
  - (c) *Gingosira*
  - (d) *Geladium*
6. Ear cockle disease of wheat is caused by:
  - (a) *Anguina tritici*
  - (b) *Heterodera avenae*
  - (c) *Meloidogyne tritici*
  - (d) *Ditylenchus radicola*
7. Powdery mildew symptoms are produced by one of the following genera:
  - (a) *Sphaerodothis*
  - (b) *Sphaerotheca*
  - (c) *Sphaerella*
  - (d) *Sphaerospora*
8. The primary inoculum of black rust of wheat in India is:
  - (a) Uredospore
  - (b) Teliospore
  - (c) Basidiospore
  - (d) Aeciospore
9. Psuedocelators are found in the sporophyte of:
  - (a) *Marchantia*
  - (b) *Pelia*
  - (c) *Anthoceros*
  - (d) *Polytrichum*

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10. Sporogonium of sporophyte is:
    - (a) Leafless and rootless
    - (b) With leaf and root
    - (c) Leafless with root
    - (d) None of the above
  11. Alternation of generation in bryophytes is:
    - (a) Homologous
    - (b) Heterosporous
    - (c) Heterozygous
    - (d) None of the above
  12. The living example of near telome is:
    - (a) *Psilotum*
    - (b) *Lycopodium*
    - (c) *Selaginella*
    - (d) *Marsilea*
  13. Heterospory is found in:
    - (a) *Rhynia*
    - (b) *Psilotum*
    - (c) *Selaginella*
    - (d) *Equisetum*
  14. Fern gametophyte is:
    - (a) Homothallic
    - (b) Heterothallic
    - (c) Autoecious
    - (d) Heteroecious
  15. The wing of *Pinus* seeds is developed from:
    - (a) Integument
    - (b) Nucellus
    - (c) Ovuliferous scale
    - (d) Carpillary scales
  16. The wood of *Ephedra* consists of:
    - (a) Tracheids
    - (b) Vessels
    - (c) Both tracheids and vessels
    - (d) None of the above
  17. *Cycas revoluta* is widely grown as:
    - (a) Medicinal plant
    - (b) Ornamental plant
    - (c) Wood yielding plant
    - (d) Oil yielding plant
  18. Male gametes of *Pinus* are:
    - (a) Nonciliated
    - (b) Multiciliated
    - (c) Biciliated
    - (d) Triciliated
  19. Pollens produced by *Pinus* pollinate the female cones of:
    - (a) Current year
    - (b) Last year
    - (c) Developed 2 year earlier
    - (d) Developed 3 year earlier
  20. The ovule is comparable to:
    - (a) Megasporangium
    - (b) Microsporangium
    - (c) Megasporephyll
    - (d) Microsporophyll

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21. Pure line selection method is employed for:

- (a) Cross pollinated crop
- (b) Asexually propagated crop
- (c) Male sterile crop
- (d) Self pollinated crop

22. Bisporic embryo sac is found in:

- (a) *Adox*
- (b) *Oenothera*
- (c) *Drusa*
- (d) *Endymion*

23. In *Salvia*, the pollination is affected by:

- (a) Water
- (b) Insects
- (c) Birds
- (d) Air

24. The most common occurrence of ovule in angiosperm is:

- (a) Campylotropous
- (b) Amphitropous
- (c) Anatropous
- (d) Circinotropous

25. One of the followings is not the part of an older tree bark:

- (a) Cork
- (b) Phelloderm
- (c) Secondary xylem
- (d) Secondary phloem

26. A nail was driven into the trunk of a tree at a point 1.5 m above the soil level. After 3 years the nail will:

- (a) Remain where it was
- (b) Move side ways
- (c) Move up
- (d) Move down

27. The term meristem was given by:

- (a) Nageli
- (b) Hanstien
- (c) Strasburger
- (d) Grew

28. How many layers of cells constitute a cambium?

- (a) 1
- (b) 2
- (c) 3
- (d) 4

29. 'Autecology forms the foundation upon which synecology is built.' This statement is:

- (a) Most time not agreeable
- (b) Always not agreeable
- (c) Some time agreeable
- (d) Always agreeable

30. Transition zone between two vegetational types or vegetational regions is known as:

- (a) Ecoline
- (b) Ecotone
- (c) Ecotype
- (d) Ecosystem

31. Individuals of the same species inhabiting a particular locality constitute:

- (a) Community
- (b) Flora
- (c) Population
- (d) Fauna

32. A natural biome is:

- (a) Lawn
- (b) Crop field
- (c) Pond
- (d) Forest

33. Eutrophic lakes are:

- (a) Rich in nutrients
- (b) Poor in nutrients
- (c) Rich in oxygen
- (d) Rich in light

34. Which of the following taxonomists belongs to Royal Botanic Garden, Kew (England)?

- (a) George Benthem
- (b) Joseph Hooker
- (c) Hutchinson
- (d) All the above

35. Natural insecticide obtained from neem is:

- (a) Nicotine
- (b) Azadirachtine
- (c) Ecdysone
- (d) All the above

36. Which of the following is most commonly used for green manuring in India?

- (a) Sunhemp
- (b) Lentil
- (c) Cowpea
- (d) All the above

37. The leaves of *Azolla* house the colonies of:

- (a) *Rhizobium*
- (b) *Azotobacter*
- (c) *Anabaena*
- (d) *Azospirillum*

38. Dwarf wheat was developed by:

- (a) Vavilov
- (b) Borlaug
- (c) P. Maheshwari
- (d) None of the above

39. What is generally used to observe unstained living tissue?

- (a) Polarisation microscope
- (b) Phase contrast microscope
- (c) Radio autogram
- (d) Ultra centrifuge

40. Which of the following is a technique for the quantitative estimation of substances in a cell?

- (a) X-ray crystallography
- (b) Autoradiography
- (c) Chromatography
- (d) Spectrophotometry

41. Obdiplostameneous condition of androecium is common in the family:  
 (a) Cucurbitaceae (b) Asclepiadaceae  
 (c) Rutaceae (d) Solanaceae
42. Monocarpellary condition is one of the striking features of:  
 (a) Cucurbitaceae (b) Rubiaceae  
 (c) Caryophyllaceae (d) Papilionaceae
43. The end of the translator that sticks to the body of the insect is:  
 (a) Caudicle (b) Pollonium  
 (c) Ratnaculum (d) Corpusculum
44. An example of a plant bearing cyathium type of inflorescence is:  
 (a) *Poinsettia* (b) *Dianthus*  
 (c) *Begonia* (d) *Citrus*
45. The woody plant medium was proposed by:  
 (a) Lloyd and Mc Cown 1981 (b) Gambage *et al.* 1968  
 (c) Murashige and Skoog 1962 (d) Linsmere and Skoog 1972
46. Which of the following is a genetically engineered species?  
 (a) Fivr savr (b) Bt-cotton  
 (c) Golden rice (d) All the above
47. The first successful *in vitro* fertilization was conducted by:  
 (a) Kranz *et al.* 1990 (b) Kanta and Maheshwari 1960  
 (c) Kanta *et al.* 1962 (d) Zenkteler 1965
48. Cytokinin may be degraded by:  
 (a) Cytokinin oxidase (b) Cytokinin reductase  
 (c) Cytokinin degradase (d) None of the above
49. Response to touch is:  
 (a) Seismonasty (b) Nyctinasty  
 (c) Thermonasty (d) Epinasty
50. 'Whiptail of cauliflower' is caused due to the deficiency of:  
 (a) Boron (b) Molybdenum  
 (c) Manganese (d) Iron

51. The amount of energy released with the break of last bond of ATP is:  
 (a) 0.15 K Cal (b) 1.5 K Cal  
 (c) 3.7 K Cal (d) 13 K Cal
52. The element essential as electron carrier is:  
 (a) Iron (b) Calcium  
 (c) Zinc (d) Sulphur
53. The element essential for root hair formation is:  
 (a) Zinc (b) Molybdenum  
 (c) Copper (d) Calcium
54. A simple experiment to prove the essentiality of  $\text{CO}_2$  in photosynthesis was given by:  
 (a) Robert Hill (b) Melvin Calvin  
 (c) Von Moll (d) Daniel Arnon
55. PEP carboxylase enzyme is required in:  
 (a)  $\text{C}_3$  plants (b)  $\text{C}_4$  plants  
 (c)  $\text{C}_3$  and  $\text{C}_4$  plants (d) All green plants
56. *Raphanobrassica* is a product of cross between:  
 (a) *R. sativus* x *B. oleracea* (b) *R. sativus* x *B. juncea*  
 (c) *R. sativus* x *B. campestris* (d) *R. sativus* x *B. nigra*
57. Which of the following definitions belongs to reverse genetics?  
 (a) Study from phenotype to DNA (b) Study from DNA to phenotype  
 (c) Study which lacks Mendelian phenotypic ratios (d) Study from DNA to RNA
58. If the dominant alleles of both gene loci produce the same phenotype without cumulative effect, the 9:3:3:1 ratio is modified to:  
 (a) 12:4 (b) 9:7  
 (c) 12:3:1 (d) 15:1
59. The enzyme that does not denature at 95 °C is:  
 (a) DNA polymerase I (b) Taq polymerase  
 (c) Ligase (d) Reverse transcriptase
60. Frame shift mutation occurs due to:  
 (a) Deletion (b) Transversion  
 (c) Translocation (d) Inversion



61. The amount of DNA and RNA in chloroplast is:
- RNA is more than DNA
  - DNA is more than RNA
  - DNA and RNA are equal
  - DNA is 3-times more than RNA
62. Apomictic embryo may develop from:
- Diploid zygote
  - Diploid cell in the ovule
  - Diploid cell from shoot apex
  - Haploid egg cell in the ovule
63. The viral genome integrated into a bacterial genome is referred to as:
- Phagemid
  - Prophase
  - Prophage
  - Mesosome
64. The antigenic molecule in antigen B is:
- Glucose
  - Galactose
  - Fucose
  - Ribose
65. In bacterial translation process, the translocation step is catalyzed by the factor:
- IF-3
  - Rho
  - EF-G
  - Sigma
66. Tandomly repeated genes code for:
- Histones
  - r RNA
  - t RNA
  - All the above
67. The polyploidy level in doob grass (*Cynodon dactylon*) is:
- Segmental allopolyploid
  - Autotetraploid
  - Hexaploid
  - Autotriploid
68. The characteristic degeneracy of codon is not applicable to:
- Tryptophan
  - Serine
  - Lysine
  - Cysteine
69. During transcription, RNA polymerase covers:
- 20 bp
  - 40 bp
  - 60 bp
  - 100 bp
70. Telomeres of chromatin fibres remain attached to:
- Nucleolus
  - Nuclear lamina
  - Centrosome
  - Centromers

## SECTION 'B'

### (Short Answer Questions)

Write short notes on the following:

- Name the causing agent of 'Root knot of okra', 'Ear cockle of wheat' and 'Citrus canker'.
- Comment upon 'hybrid vigour'.
- Elaborate the concept of 'self incompatibility'.
- Write general characteristics of *Equisetum*.
- Write the structure and function of periderm.
- Write the general properties of genetic code.
- Enumerate the role of biotechnology in modern age.
- Write the importance of ICBN.
- What do you understand by Niche and Succession?
- Write the difference between C<sub>3</sub> and C<sub>4</sub> plants.

# Amu Updates

## DEPARTMENT OF BOTANY, ALIGARH MUSLIM UNIVERSITY, ALIGARH

2012-2013 ADMISSION TEST M. Sc. BOTANY	PARTICULARS TO BE FILLED IN BY THE CANDIDATE
	<ol style="list-style-type: none"><li>1. Name of the Centre: .....</li><li>2. Date of the Test: .....</li><li>3. Roll No. (In Figures): .....</li><li>4. Name of the Candidate: .....</li><li>5. Name of the Candidate's Father: .....</li><li>6. Name of the Candidate's Mother: .....</li></ol>

Time: 2 Hours

Maximum Marks: 200

Signature of the Invigilator

### INSTRUCTIONS TO CANDIDATE

1. This booklet contains twelve pages (including cover page).
2. All questions are compulsory. There are two Sections. In Section 'A' each question is followed by four alternatives marked as a, b, c and d. Select one of the answer which you consider as the most appropriate and mark the same on the OMR Answer Sheet provided to you. Section 'B' is short answer questions.
3. Use only ball point pen for marking the correct answers on the OMR Answer Sheet. There is no negative marking.
4. Do not put any other marks in any part of the OMR Answer Sheet.
5. Electing more than one answer to a question would result in its being treated as wrong.
6. OMR Answer Sheet must be handled very carefully. It should not be folded.
7. No request for re-evaluation/re-totalling will be entertained.
8. The candidate appearing at this Test has to abide by all the rules framed from time to time by the University.
9. Violation of any of these instructions will result in cancellation of whole Admission Test of the candidate.
10. The candidates resorting to unfair means in the Admission test shall be dealt with as per the University rules.
11. No extra sheets will be provided.



SECTION 'A'

(Multiple Choice Questions)

1. The process of denitrification is facilitated in the presence of:  
(a) Thiobacillus (b) Nitrobacter  
(c) Nitrosomonas (d) Rhizobium
2. The process of transference of genetic material of one bacterium (donor) to the other bacterium with the help of bacteriophage is:  
(a) Translation (b) Transduction  
(c) Transcription (d) Transformation
3. In all members of Ascomycetes the number of ascospores and their arrangement in an ascus are as follows:  
(a) Eight ascospores in a linear order  
(b) Four ascospores in a linear order  
(c) Either eight or four ascospores, but always in a linear order  
(d) Either eight or four ascospores without any order
4. *Penicillium* is a:  
(a) White mould (b) Black mould  
(c) Blue mould (d) Yellow mould
5. The mycelium is typically coenocytic in:  
(a) Phycomycetes (b) Ascomycetes  
(c) Basidiomycetes (d) None of the above
6. In *Selaginella* male gametes are:  
(a) Multiflagellate (b) Aflagellate  
(c) Biflagellate (d) Monoflagellate
7. In *Dryopteris* flagella of spermatozoids are attached to:  
(a) Cell nucleus (b) Blepharoplast  
(c) Rhizoplast (d) Body surface
8. The venation of leaf in *Pteridium* is:  
(a) Replicate (b) Circinate  
(c) Conduplicate (d) Convolute

9. If the calculated value of 't' at a df of  $\alpha$  some level comes lesser than the table value, then one can draw inference that:

- (a) The difference between two means is significant
- (b) The difference between two means is insignificant
- (c) Not possible to draw inference
- (d) The value of calculated 't' and table 't' will be same

10. The value of the correlation coefficient between two variables lie between:

- (a) 0 and  $\alpha$
- (b)  $-\alpha$  and  $+\alpha$
- (c) 0 and 1
- (d) -1 and 1

11. Which are the most primitive algae?

- (a) Red algae
- (b) Blue-green algae
- (c) Green algae
- (d) Brown algae

12. All algae have:

- (a) Phycobilins and carotenes
- (b) Chlorophyll a and b
- (c) Chlorophyll b and carotene
- (d) Chlorophyll a and carotene

13. Functions of elators and psuedoelators are:

- (a) Absorption of nutrition
- (b) To provide mechanical strength
- (c) Spore dispersal
- (d) Conduction of sap

14. Elators of *Marchantia* are:

- (a) Haploid
- (b) Diploid
- (c) Triploid
- (d) Polyploid

15. Protonema is a stage in the life cycle of:

- (a) All bryophytes
- (b) *Riccia*
- (c) *Cycas*
- (d) *Funaria*

16. The term MOSAIC was coined by:

- (a) Adolf Mayer
- (b) Iwanowaski
- (c) Louis Pasteur
- (d) Loefflen

17. The classification given by Bentham and Hooker is:

- (a) Natural
- (b) Phylogenetic
- (c) Artificial
- (d) Numerical

18. Two plants A and B are different in correlated morphological characters. The two plants should be treated as:

- (a) One taxonomic species
- (b) One biological species
- (c) Two taxonomic species
- (d) Two biological species

19. Recapitulation theory was given by:

- (a) Weismann
- (b) Lamarck
- (c) Haeckel
- (d) Henerly

20. Which of the following taxonomists belong to Royal Botanic Garden, Kew (England)?:

- (a) George Bentham
- (b) Joseph Hooker
- (c) Hutchinson
- (d) All the above

21. Characters from flowers are used as a basis of classification because:

- (a) Reproductive parts are more conservative than vegetative parts
- (b) Flowers show variety of colours
- (c) Flowers can be preserved easily
- (d) None of the above

22. Xylem in Gymnosperms lacks:

- (a) Fibres
- (b) Tracheids
- (c) Vessels
- (d) Parenchyma

23. If the haploid number of chromosomes in a Gymnosperm is 12, the chromosome number in its endosperm cells will be:

- (a) 6
- (b) 24
- (c) 12
- (d) 36

24. In *Cycas* there are present:

- (a) Laticiferous canals
- (b) Resin canals
- (c) Mucilaginous canals
- (d) None of the above

25. Roots of *Pinus* seedlings are associated with:

- (a) Bacteria
- (b) Virus
- (c) Algae
- (d) Fungi

26. Function of lateral veins in *Cycas* is performed by:

- (a) Palisade
- (b) Secretory tissue
- (c) Mesophyll
- (d) Transfusion tissue



27. Occurrence of a fence or barrier between anthers and stigma of a flower is called:
- (a) Dichogamy (b) Cleistogamy  
(c) Herkogamy (d) Heterostyly
28. Caryopsis is a fruit of:
- (a) Wheat (b) Pea  
(c) Apple (d) Coconut
29. Sugarcane inflorescence is a:
- (a) Spike (b) Catkin  
(c) Panicle (d) Verticillaster
30. A corolla of five petals with vexillary aestivation is said to be:
- (a) Ligulate (b) Bilabiate  
(c) Personate (d) Papilionaceous
31. The ovule is comparable to:
- (a) Megasporangium (b) Microsporangium  
(c) Megasporophyll (d) Microsprophyll
32. The youngest layer of secondary phloem in a dicot stem is located just:
- (a) Inside the primary phloem (b) Inside the vascular cambium  
(c) Outside the vascular cambium (d) Outside the secondary xylem
33. Phloem parenchyma is absent in:
- (a) Vascular rays (b) Monocot stem  
(c) Dicot root (d) Dicot leaf
34. Quiescent centre is the structural form in:
- (a) Shoot apex (b) Lateral meristem  
(c) Apical meristem (d) Root apex
35. How many layers of cells constitute a cambium?:
- (a) 1 (b) 2  
(c) 3 (d) 4
36. Which of the following element is essential for nitrogen metabolism in reduction of nitrates:
- (a) Zinc (b) Molybdenum  
(c) Iron (d) Manganese

37. Conversion of starch to organic acid is essential for:
- (a) Stomatal closure (b) Stomatal opening  
(c) Stomatal initiation (d) Stomatal growth
38. Basic structure of all chlorophylls comprises:
- (a) Cytochrome system (b) Flavoproteins  
(c) Porphyrin system (d) Plastocyanin system
39. Which organism has been experimentally used to study the mechanism of photosynthesis?:
- (a) Hydrilla (b) Chlorella  
(c) Spinach (d) Spirogyra
40. Phytotron is a device by which:
- (a) Plants are grown in controlled environment  
(b) Mutations are produced in plants  
(c) Electrons are bombarded  
(d) Protons are liberated
41. Sulphur is not a constituent of:
- (a) Cysteine (b) Ferredoxin  
(c) Thiamine (d) Pyridoxine
42. Number of ATP required for conversion of  $N_2$  to  $NH_3$  by biological means is:
- (a) 12 (b) 14  
(c) 16 (d) 18
43. Largest ecosystem of the world is:
- (a) Forests (b) Grasslands  
(c) Great lakes (d) Oceans
44. An ecosystem resists change because it is in a state of:
- (a) Homeostasis (b) Regular illumination  
(c) Static imbalance (d) Food accumulation
45. 'Silent Valley' has a rare collection of species of plants, it is a tropical rain forest situated in:
- (a) W. Himalayas (b) Rajasthan  
(c) Tamil Nadu (d) Kerala

Amu Updates

46. Which of the following has fewer trees, hot climate throughout the year and alternating wet and dry season?
- (a) Savannah  
(b) Tropical rain forest  
(c) Temperate grassland  
(d) Tundra
47. Where species of two different vegetational types are found, such a region is called:
- (a) Ecotone  
(b) Ecotone  
(c) Ecology  
(d) Ecotype
48. The composition of jute fibre is:
- (a) Cellulose  
(b) Lignin  
(c) Callose  
(d) Pectin
49. In *Cicer arietinum* the sour taste of leaf and fruit is due to the presence of:
- (a) Oxalic acid  
(b) Citric acid  
(c) Oxalic acid and malic acid  
(d) Oxalic acid and citric acid
50. Long fibres are known as:
- (a) Flint  
(b) Lint  
(c) Fluff  
(d) Fuz
51. One of the following is not a source of starch:
- (a) Solanum  
(b) Manihot  
(c) Alocacia  
(d) Phaseolus
52. Which of the following provides a general barrier to the movement of molecules in a plasma membrane?
- (a) Lipids  
(b) Proteins  
(c) Carbohydrates  
(d) All the above
53. During which phase of the cell cycle are normal components of the cell synthesized and assembled?
- (a) M phase  
(b) G<sub>1</sub> phase  
(c) S phase  
(d) G<sub>2</sub> phase
54. PCR based DNA amplification is an essential feature of which of the following combination of molecule markers:
- (a) RFLP, AFLP and SSR  
(b) AFLP, SSR and RAPD  
(c) RFLP, RAPD and SSR  
(d) RAPD, RFLP and SSR
55. Hybridoma technology is used to produce:
- (a) Monoclonal antibodies  
(b) Polyclonal antibodies  
(c) a and b both  
(d) B cells

56. The process that led to the evolution of the common bread wheat from its progenitors is:
- (a) Triploidy  
(b) Aneuploidy  
(c) Introgression  
(d) Hybridization
57. Formation of embryo directly from nucellus and integuments is:
- (a) Adventitious polyembryony  
(b) Apospory  
(c) Apogamy  
(d) Apomixis
58. The phenomenon of masking the effect of one gene pair by another is called:
- (a) Dominance  
(b) Epistasis  
(c) Heterosis  
(d) Mutation
59. Pseudodominance may be observed in heterozygotes for:
- (a) Deletion  
(b) Duplication  
(c) Paracentric inversion  
(d) Reciprocal translocation
60. Recombination of chromosome segment occurs in:
- (a) Metaphase  
(b) Anaphase  
(c) Telophase  
(d) Diakinesis
61. The most easily recognized characteristic of an inversion heterozygote in plants is:
- (a) Gigantism  
(b) Semisterility  
(c) A cross shaped chromosome  
(d) Pseudodominance
62. *Bacillus thuringiensis* is used in genetic engineering because:
- (a) Its genes can be transferred to the desirable organism  
(b) Its genetic mapping is easy  
(c) It can be grown easily  
(d) It produces toxin protein
63. Genetic maps of chromosomes are based on:
- (a) Non disjunction  
(b) Translocation  
(c) Dominance  
(d) Genetic recombination
64. Two allelic genes are located on:
- (a) Two homologous chromosome on same loci  
(b) The same chromosome at different loci  
(c) Two homologous chromosome on different loci  
(d) Two non homologous chromosomes



65. Somatic hybridization refers to:

- (a) Fusion of male gamete with the egg cell
- (b) Fusion of male gamete with the polar nuclei
- (c) Fusion of protoplasts
- (d) Fusion of male gamete with the polar nuclei

66. The cellular composition of mRNA is:

- (a) 5-10% (b) 3-5%
- (c) 10-20% (d) 70-80%

67. The ratio of purines and pyrimidines in mRNA is not 1:1 because the nitrogenous bases are:

- (a) Unpaired (b) Paired
- (c) Paired only in loops (d) Paired in stems

68. Sequencing of genomic DNA is included under:

- (a) Structural genomics (b) Functional genomics
- (c) Proteomics (d) Transmeiosis

69. Functional unit of a gene that specifies synthesis of one polypeptide is:

- (a) Codon (b) Cistron
- (c) Recon (d) Muton

70. Genes between related organisms exhibit high variation, which occur maximally in:

- (a) Exons (b) Introns
- (c) Promoters (d) Polyadenylation site

#### SECTION 'B'

(Short Answer Questions)

Write short notes on the following in the space provided.

1. Write the characteristics features of Early blight of potato.
2. Write the important features of *Anthoceros*.
3. Elaborate the concept of 'telome theory'.
4. Write general characteristics of *Cycas*.
5. Write the function of shoot apical meristem.
6. Comment upon the ratio 9:3:4.
7. What is DNA fingerprinting?
8. Write the economic importance of Asclepiadaceae.
9. What are ecads and ecolines?
10. Define Critical photoperiod with suitable example.

Amu Updates

Department of Botany, Alligach Muslim University, Alligach

2011-2012 ADMISSION TEST M. Sc. BOTANY	<b>PARTICULARS TO BE FILLED IN BY THE CANDIDATE</b>
	1. Name of the Centre: ..... 2. Date of the Test: ..... 3. Roll No. (In Figures): ..... 4. Name of the Candidate: ..... 5. Name of the Candidate's Father: ..... 6. Name of the Candidate's Mother: .....

Signature of the Invigilator

Time: 2 Hours

Maximum Marks: 200

#### INSTRUCTIONS TO CANDIDATE

1. This booklet contains eleven pages.
2. All questions are compulsory. There are two Sections. In Section 'A' each question is followed by four alternatives marked as a, b, c and d. Select one of the answer which you consider as the most appropriate and mark the same on the OMR Answer Sheet provided to you. Section 'B' is short answer questions.
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SECTION 'A'  
(Multiple Choice Questions)

1. Nucleocapsid consists of:  
(a) Nucleic acid and capsomere (b) Nucleic acid and capsid  
(c) Nucleic acid and capsin (d) Nucleic acid and caspin
2. In Inducible operon model, the addition of substrate causes:  
(a) Feed back inhibition (b) Over production of enzymes  
(c) Repression (d) Induction
3. The palindromic sequence of Restriction enzyme Eco RI is:  
(a) GAATTC (b) AGCT  
(c) GGATCC (d) GGCC
4. Each chromosome during interphase becomes double and is then called:  
(a) Tetraploid (b) Tetrad  
(c) Dyad (d) Diploid
5. The most conspicuous phase in the life cycle of bryophytes is:  
(a) Sporophyte (b) Epiphyte  
(c) Gametophyte (d) Saprophyte
6. Sporogonium of bryophytes is:  
(a) Leafless and rootless (b) With leaves and roots  
(c) Leafless with roots (d) None of the above
7. Foot and seta are present in sporophyte of:  
(a) *Riccia* (b) *Marchantia*  
(c) *Anthoceros* (d) None of the above
8. The growth in *Spirogyra* is:  
(a) Apical (b) Intercalary  
(c) By intussusception (d) By apposition
9. Parasitic algae is:  
(a) *Prasiola* (b) *Ulothrix*  
(c) *Oedogonium* (d) *Cephaleures*
10. Reproduction through hormogones is found in:  
(a) Blue green algae (b) Green Algae  
(c) Brown Algae (d) Euglenids

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11. Conidia are moriform in:

- |                              |                               |
|------------------------------|-------------------------------|
| (a) <i>Alternaria solani</i> | (b) <i>Puccinia graminis</i>  |
| (c) <i>Albugo candida</i>    | (d) <i>Puccinia recondita</i> |
12. Which of the following is archaebacteria?:  
(a) Cyanobacteria (b) Green sulphur bacteria  
(c) Rickettsias (d) Methanogens bacteria
  13. Point mutation occurs on:  
(a) Gene (b) Chromosome  
(c) Autosome (d) Sex chromosome
  14. A chemical mutagen is:  
(a) Nitrogen mustard (b) Sulphur mustard  
(c) Nitrous acid (d) All the above
  15. Tobacco mosaic Virus disease is transmitted through:  
(a) Aphids (b) Tassids  
(c) Whitefly (d) Contact
  16. Genetic material possessing the dual capacity to exist either as extrachromosomal or chromosomal entity is called:  
(a) Episome (b) Autosome  
(c) Mesosome (d) Oxyosome
  17. Which of the following resembles clover leaf pattern?  
(a) m-RNA (b) t-RNA  
(c) r-RNA (d) All the above
  18. When does replication of DNA take place?  
(a) During meiosis (b) During mitosis  
(c) During interphase (d) During pachytene and diplotene
  19. *Funaria* grows tufts and are:  
(a) Thallose (b) Foliose  
(c) a and b both (d) None of the above
  20. *Rhynia* belongs to a geological period:  
(a) Carboniferous (b) Permian  
(c) Devonian (d) Cambrian

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21. *Lycopodium* is commonly known as:  
 (a) Horse tail (b) Club moss  
 (c) Quillwort (d) Stonewort
22. The ovuliferous scale of *Pinus* is a part of:  
 (a) Megasporophyll (b) Microsporophyll  
 (c) Ovule (d) Dwarf shoot
23. The function of transfusion tissues of *Cycas* leaflet is:  
 (a) Mechanical (b) Photosynthetic  
 (c) Conduction (d) Storage
24. A blue-green algae lives in:  
 (a) *Riccia* thallus (b) *Marchantia* thallus  
 (c) *Pteris* stem (d) *Cycas* roots
25. *Ephedra* wood consists of:  
 (a) Tracheids (b) Vessels  
 (c) Both tracheids and vessels (d) None of the above
26. Which one is a hexaploid species of wheat?  
 (a) *Triticum monococcum* (b) *Triticum durum*  
 (c) *Triticum speltoids* (d) *Triticum aestivum*
27. In *Salvia*, pollination is affected by:  
 (a) Water (b) Insects  
 (c) Birds (d) Air
28. Colchicine is obtained from members of:  
 (a) Solanaceae (b) Liliaceae  
 (c) Rutaceae (d) Rubiaceae
29. In family Cyperaceae, each microspore mother cell develops into:  
 (a) Four microspores (b) Three microspores  
 (c) One microspore (d) Several microspores
30. Tracheids, vessels, wood fibres and wood parenchyma constitute:  
 (a) Xylem (b) Phloem  
 (c) Tyloses (d) Asterosclerieds
31. Passage cells are present in:  
 (a) Epidermis (b) Endodermis

- (c) Xylem (d) Lenticels & Hydrathodes
32. In bicollateral vascular bundle:  
 (a) Xylem is sandwiched between phloem  
 (b) Phloem is sandwiched between Xylem  
 (c) Xylem and phloem are present as two lateral strands  
 (d) Xylem is embedded in phloem
33. Safranin promptly stains:  
 (a) Protein (b) Pectin  
 (c) Cutin (d) Lignin
34. Ribozymes are:  
 (a) Enzyme (b) Protein  
 (c) RNA molecule working as enzyme (d) a and b both
35. Insect resistant cry genes are obtained from:  
 (a) *Bacillus thuringiensis* (b) *Bacillus papillae*  
 (c) *Bacillus sphaericus* (d) *Bacillus tumefaciens*
36. ARS vectors for gene manipulation are obtained from:  
 (a) Plasmids (b) Phages  
 (c) *E. Coli* genome (d) Yeast genome
37. The plant that is used as a model system for the study of plant genetics is:  
 (a) *Arabidopsis thaliana* (b) *Pisum sativum*  
 (c) *Cicer arietinum* (d) *Ocimum sanctum*
38. What basis of the RNA transcript would represent the DNA Sequence 5' TGCAGACA3':  
 (a) ACGTCTGT (b) UCGTCTGU  
 (c) ACGTGUGU (d) ACGUCUGU
39. Enzyme circulation protein, synthesis and mechanical support are the function of:  
 (a) Endoplasmic reticulum (b) Mitochondria  
 (c) Dictyosome (d) None of the above
40. The genetic transformation by *Agrobacterium* is facilitated by the presence of:  
 (a) Octopine region (b) Nopaline region  
 (c) T-DNA region (d) None of the above
41. Golden rice is a:  
 (a) Genetically engineered rice (b) Having the gene for  $\beta$  carotene  
 (c) Vitamin A producing rice (d) All the above

42. Bromouracil (5BU) is a structure analogue of:  
 (a) Thymine (b) Adenine  
 (c) Guanine (d) Cytosine
43. Holliday model for the recombination of DNA was given in:  
 (a) 1953 (b) 1960  
 (c) 1964 (d) 1969
44. During transcription, helicity of DNA is removed by:  
 (a) Helicase (b) Gyrase  
 (c) Topoisomerase (d) Unwindase
45. The ions involved in folding and unfolding of *Mimosa* leaves are:  
 (a)  $\text{Na}^+$  and  $\text{K}^+$  (b)  $\text{Ca}^{++}$  and  $\text{Na}^+$   
 (c)  $\text{K}^+$  and  $\text{Ca}^{++}$  (d)  $\text{Ca}^{++}$  and  $\text{Mg}^{++}$
46. Long-day plants include:  
 (a) Hibiscus and Henbane (b) Bean and Buckwheat  
 (c) Cotton and Cucumber (d) Cocklebur and Cosmos
47. Incorporation of ammonia into organic compounds may take place through:  
 (a) GDH pathway (b) GS-GOGAT pathway  
 (c) a and b both (d) Ascorbate-glutathione pathway
48. Apical dominance is associated with:  
 (a)  $\text{GA}_3$  (b) ABA  
 (c) Zeatin (d) None of the above
49. The water status in soil at which plants show wilting is:  
 (a) Field capacity (b) Wilting coefficient  
 (c) Threshold point (d) Water retaining capacity
50. The formation of acetyl Co A from pyruvic acid results from:  
 (a) Reduction (b) Dehydration  
 (c) Dephosphorylation (d) Oxidative decarboxylation
51. Total number of essential elements is:  
 (a) 15 (b) 16  
 (c) 17 (d) 18

52. Phytol tail of chlorophyll molecule is:  
 (a)  $\text{C}_{20}\text{H}_{39}\text{OH}$  (b)  $\text{C}_{20}\text{H}_{39}\text{O}$   
 (c)  $\text{C}_{15}\text{H}_{31}\text{OH}$  (d)  $\text{C}_{15}\text{H}_{31}\text{O}$
53. Under normal conditions, the ratio of Chl a to Chl b varies between:  
 (a) 1.5 - 2.5 (b) 2.5 - 3.5  
 (c) 3.5 - 4.5 (d) 4.5 - 5.5
54. The sensitivity of nitrogenase enzyme is to:  
 (a) Carbon (b) Hydrogen  
 (c) Oxygen (d) Nitrogen
55. The function of PSI and PSII is:  
 (a) Generation of reducing power (b) Evolution of oxygen  
 (c) Reduction of ferredoxin (d) All the above
56. Stomatal movement is influenced by:  
 (a) Sugars (b) pH  
 (c) Malic acid (d) All the above
57. An ecosystem may be defined as:  
 (a) Biological community + abiotic environment  
 (b) Population + abiotic environment  
 (c) Autotrophs + Heterotrophs  
 (d) Autotrophs + Heterotrophs + decomposers
58. An urn-shaped age structure diagram indicates:  
 (a) Stable population (b) Diminishing population  
 (c) Expanding population (d) Population boom
59. The term ecosystem was first coined by:  
 (a) Tansley (b) Odum  
 (c) Hutchinson (d) Grinnel
60. Obdiplostameneous condition of androecium is common in the family:  
 (a) Cucurbitaceae (b) Asclepiadaceae  
 (c) Rutaceae (d) Solanaceae
61. Monocarpeal condition is one of the striking features of:  
 (a) Cucurbitaceae (b) Rubiaceae  
 (c) Caryophyllaceae (d) Papilionaceae

Amu Updates



62. The edible part of cauliflower (*Brassica oleraceae* var. botrytis) is:

- (a) Stem
- (b) Inflorescence
- (c) Root
- (d) Flowers

63. Stylopodium is found in the family:

- (a) Malvaceae
- (b) Apiaceae
- (c) Moraceae
- (d) Asclepiadaceae

64. Sugarcane inflorescence is:

- (a) Spike
- (b) Catkin
- (c) Panicle
- (d) Verticillator

65. The stem portion of sugarcane left underground after harvesting for propagation is termed as:

- (a) Seed cane
- (b) Seed pieces
- (c) Ratooning
- (d) All of the above

66. Ephedrine is obtained from:

- (a) Gymnosperm
- (b) Angiosperm
- (c) Pteridophyte
- (d) Bryophyte

67. Ergot is obtained from:

- (a) Wheat
- (b) Barley
- (c) Rye
- (d) None of the above

68. The commercial coffee is obtained from:

- (a) Leaves
- (b) Flowers
- (c) Fruits
- (d) Seeds

69. Small seeded cereals and forage grasses are known as:

- (a) Legumes
- (b) Millets
- (c) Pulses
- (d) Masticatorics

70. A corolla of five petals with vexillary aestivation is known as:

- (a) Ligulate
- (b) Bilabiate
- (c) Personate
- (d) Papilionaceous

## SECTION 'B'

### (Short Answer Questions)

Answer briefly in the space provided.

1. Differentiate between bacteriophages and cyanophages.
2. Write roles of algae in human life.
3. 'Flower is a modified shoot'. Expand the statement.
4. Write general characteristics of gymnosperms.
5. What are complimentary genes?
6. What do you understand by standard deviation?
7. Give the criteria of essentiality for mineral nutrient elements.
8. Give the significance of somatic hybridization.
9. Write special features of reproductive structure of Asclepiadaceae.
10. What are ecological pyramids?