## UNIVERSITY OF MYSORE Postgraduate Entrance Examination November-2021

| QUESTION PAPER <br> BOOKLET NO. |
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| Entrance Reg. No. |  |  |  |  |  |  |
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## SUBJECT CODE <br> 17

(Read carefully the instructions given in the Question Booklet)


MAXIMUM MARKS : 100
MAXIMUM TIME : 135 MINUTES
(Including time for filling O.M.R. Answer sheet)

## INSTRUCTIONS TO THE CANDIDATES

1. The sealed question paper booklet containing 100 questions enclosed with O.M.R. Answer Sheet is given to you.
2. Verify whether the given question booklet is of the same subject which you have opted for examination.
3. Open the question paper seal carefully and take out the enclosed O.M.R. Answer Sheet outside the question booklet and fill up the general information in the O.M.R. Answer sheet. If you fail to fill up the details in the form as instructed, you will be personally responsible for consequences arising during evaluating your Answer Sheet.
4. During the examination:
a) Read each question carefully.
b) Determine the Most appropriate/correct answer from the four available choices given under each question.
c) Completely darken the relevant circle against the Question in the O.M.R. Answer Sheet. For example, in the question paper if "C" is correct answer for Question No.8, then darken against SI. No. 8 of O.M.R. Answer Sheet using Blue/Black Ball Point Pen as follows:

> Question No. 8. (A) (B) (D) (Only example) (Use Ball Pen only)
5. Rough work should be done only on the blank space provided in the Question Booklet. Rough work should not be done on the O.M.R. Answer Sheet.
6. If more than one circle is darkened for a given question, such answer is treated as wrong and no mark will be given. See the example in the O.M.R. Sheet.
7. The candidate and the Room Supervisor should sign in the O.M.R. Sheet at the specified place.
8. Candidate should return the original O.M.R. Answer Sheet and the university copy to the Room Supervisor after the examination.
9. Candidate can carry the question booklet and the candidate copy of the O.M.R. Sheet.
10. The calculator, pager and mobile phone are not allowed inside the examination hall.
11. If a candidate is found committing malpractice, such a candidate shall not be considered for admission to the course and action against such candidate will be taken as per rules.
12. Candidates have to get qualified in the respective entrance examination by securing a minimum of 16 marks in case of SC/ST/Cat-I Candidates, 18 marks in case of OBC Candidates and 20 marks in case of other Candidates out of 100 marks.

## INSTRUCTIONS TO FILL UP THE O.M.R. SHEET

1. There is only one most appropriate/correct answer for each question.
2. For each question, only one circle must be darkened with BLUE or BLACK ball point pen only. Do not try to alter it.
3. Circle should be darkened completely so that the alphabet inside it is not visible.
4. Do not make any unnecessary marks on O.M.R. Sheet.
5. Mention the number of questions answered in the appropriate space provided in the O.M.R. sheet otherwise O.M.R. sheet will not be subjected for evaluation.

6. Which one among these is considered as the most advanced inflorescence?
(A) Catkin
(B) Corymb
(C) Spadix
(D) Capitulum
7. According to Lewis concept, an acid can
(A) Accepts a pair of electrons
(B) Accepts a hydroxyl group
(C) Gives out a proton
(D) Donate a pair of electrons
8. Which of these is a typical feature of a prokaryotic cell?
(A) Absence of DNA
(B) Absence of nucleus
(C) Absence of plasma membrane
(D) Absence of cell wall.
9. L-lysine is produced from
(A) Corynebacterium glutamicum
(B) Clostridium botulinum
(C) Mycobacterium species
(D) Pseudomonas
10. Som and Soalu are host plants of
(A) Eri silkworm
(B) Topical Tasar silkworm
(C) Muga silkworm
(D) Bombyx mori
11. Who gave the experimental support for the semi-conservative mode of DNA replication?
(A) Messelson \& Stahl
(B) Watson \& Crick
(C) William \& Franklin
(D) Beadle \& Tatum
12. In circulatory system of earth worm, the dorsal and ventral vessels are bridged by
(A) Pharyngeal vessels
(B) Lateral arteries
(C) Segmental veins
(D) Lateral hearts
13. Which one of these is the example for most stable ecosystem?
(A) Mountain
(B) Ocean
(C) Forest
(D) Desert
14. Which chromosome aberration leads to a dicentric bridge at anaphase I of meiosis?
(A) Alternate disjunction
(B) Terminal selection
(C) Paracentric inversion
(D) Pericentric inversion
15. The vitamin present in coenzyme $A$ is
(A) Thiamine
(B) Pantothenic acid
(C) Riboflavin
(D) Niacin
16. The glucose ingested by the bacterial cell is made to retain within the cell by
(A) Phosphorylation
(B) Immediate breakdown
(C) Attaching to plasma membrane
(D) Carboxylation
17. Human Immunodeficiency Virus infects
(A) B-lymphocytes
(B) Red blood cells
(C) Natural killer cells
(D) $\mathrm{CD} 4^{+}$cells
18. Glycolipids in the plasma membrane are distributed in the
(A) Inner leaflet of the plasma membrane
(B) Evenly in both inner and outer leaflets
(C) Outer leaflet of the plasma membrane
(D) Varies according to the cell type
19. The yarn spun from cleaned and unopened Tasar cocoon is
(A) Katia
(B) Jhuri
(C) Ghicha
(D) Mejankhor
20. The ecosystem living in the Alpine and polar ice is called
(A) Tundra
(B) Savanna
(C) Autotrophic
(D) Grassland
21. The color blindness is an example for which pattern of inheritance?
(A) X-linked dominant
(B) Autosomal recessive
(C) Autosomal dominant
(D) X-linked recessive
22. Glucose exists in which form in Hawarth ring structure?
(A) Acetal form
(B) Diacetal form
(C) Hemiacetal form
(D) Aldehyde form
23. The sexual system of plant classification was proposed by
(A) Bentham and Hooker
(B) Carl Linnaeus
(C) Theophrastus
(D) Engler and Prantl
24. The species specific recognition of sperm at vitelline membrane is mediated by
(A) Bindin
(B) Zona pellucida
(C) Actin filaments
(D) Corticle granules
25. Which of these chromatography techniques is not under the influence of gravity?
(A) Gel permeation
(B) Ascending paper
(C) Thin layer
(D) Circular paper
26. Pasteurization is the process of heating the milk to kill microorganisms at
(A) $100^{\circ} \mathrm{C}$
(B) $85^{\circ} \mathrm{C}$
(C) $<80^{\circ} \mathrm{C}$
(D) $98^{\circ} \mathrm{C}$
27. Which of the following is used as a vector for transferring genes to animal cells?
(A) TMV
(B) SV40 virus
(C) CMV
(D) Lambda Phage
28. Insulin is secreted by the
(A) Beta cells of islets of Langerhans
(B) Alpha cells of islets of Langerhans
(C) Pancretic acinus
(D) Kupfer cells
29. 'Bulliform' cells are found in
(A) Nerium leaf
(B) Soybean leaf
(C) Maize leaf
(D) Castor leaf
30. If the F factor is integrated in to the genome of bacteria, then the organism is called
(A) $\mathrm{F}^{+}$strain
(B) F' strain
(C) $\mathrm{F}^{-}$strain
(D) HFr strain
31. One molar phosphoric acid solution is equal to
(A) One normal solution
(B) Three normal solution
(C) Two normal solution
(D) Four normal solution
32. Which of the following is a characteristic of allopatric speciation?
(A) Geographic isolation
(B) Asexually reproducing population
(C) Large population
(D) Isolation through adaptation of alleles
33. G4 mulberry variety is suggested for
(A) Chawki silkworms
(B) Rainfed condition
(C) Late age silkworms
(D) All instar silkworms
34. If the end product of the pathway inhibits the first enzyme of the pathway, then it is called
(A) Feedback inhibition
(B) Competitive inhibition
(C) Uncompetitive inhibition
(D) Suicide inhibition
35. Aerobic respiration takes place in
(A) Ribosomes
(B) Endoplasmic reticulum
(C) Lysosomes
(D) Mitochondria
36. Uptake of DNA fragment from the environment by a bacterial cell is called
(A) Conjugation
(B) Transduction
(C) Transformation
(D) Transfection
37. At synaptic junction, synaptic vesicles accumulate at
(A) Pre-synaptic membrane
(B) Axon membrane
(C) Post synaptic membrane
(D) Muscle cell membrane
38. In lac - operon model, the lactose binds to
(A) Operator
(B) Polymerase
(C) Promoter
(D) Repressor
39. Leaf spot disease in mulberry is caused by
(A) Phyllactina corylea
(B) Pseudomonas mori
(C) Cercospora moricola
(D) Cerotelium fici
40. A monocot with reticulate venation is seen in
(A) Zea
(B) Smilax
(C) Bambusa
(D) Areca
41. The energy required by red blood cells is derived from
(A) Pentose phosphate pathway
(B) Beta oxidation of fatty acids
(C) Mitochondrial electron transport chain
(D) Glycolysis
42. Global warming occurs in
(A) Troposphere
(B) Mesosphere
(C) Stratosphere
(D) Thermosphere
43. A plant cell wall is mainly composed of
(A) Cellulose
(B) Protein
(C) Peptidoglycan
(D) Starch
44. The weakest bond among the following is
(A) Phosphodiester bond
(B) Covalent bond
(C) Van der Waal's force
(D) Co-ordinate bond
45. The process of destroying living cells and spores is called
(A) Filtration
(B) Sterilization
(C) Homogenization
(D) Maceration
46. Which of these enzymes is responsible for fruit ripening?
(A) Beta glucosidase
(B) Hexokinase
(C) Amylase
(D) Polygalacturonase
47. Vernalization is the process of exposing the seeds to
(A) Low temperature
(B) High temperature
(C) Soaking in hot water
(D) Boiling water
48. The silk worm, Bombyx mori belongs to the order
(A) Diptera
(B) Isoptera
(C) Lepidoptera
(D) Coleoptera
49. The process of single gene controlling multiple traits is
(A) Phenocopy
(B) Pleiotropy
(C) Incomplete dominance
(D) Polygenic inheritance
50. Indole is a fused ring system, where
(A) Two benzene rings are fused
(B) Benzene is fused with pyrimidine
(C) Benzene is fused with thiazole
(D) Benzene is fused with pyrrole
51. DNA synthesis takes place during
(A) S phase
(B) G1 phase
(C) G2 phase
(D) G0 phase
52. Association between sucker fish and shark is an example of
(A) Mutualism
(B) Parasitism
(C) Commensalism
(D) Predation
53. Proteins absorb light at
(A) 260 nm
(B) 280 nm
(C) 660 nm
(D) Infrared
54. Which one of the following carries impure blood in mammalian circulatory system?
(A) Carotid artery
(B) Aorta
(C) Renal artery
(D) Pulmonary artery
55. Resolving power of microscope is a function of
(A) Intensity of light
(B) Focal length of condenser
(C) Refractive index
(D) Wave length of light and numerical aperture of lens
56. The female Bombyx mori is
(A) Homogametic
(B) Heterogametic
(C) Hermaphrodic
(D) Haplodiploidy
57. Who is regarded as 'Father of Green Revolution' in India?
(A) M. S. Swaminathan
(B) K. Ramaiah
(C) R. Vishwanathan
(D) K. N. Kaul
58. The maximum number of births under ideal conditions of environment is called
(A) Realized natality
(B) Ecological natality
(C) Potential natality
(D) Crude density
59. A pi bond is the result of
(A) Overlap of two s orbitals
(B) Overlap of $s$ and $p$ orbitals
(C) Overlap of two p orbitals along their axes
(D) Sidewise overlap of two parallel p orbitals
60. Protozoan which uses pseudopodia for locomotion belongs to
(A) Mastigophora
(B) Rhizopoda
(C) Ciliata
(D) Ctenophora
61. The organelle that does not contain DNA is
(A) Lysosome
(B) Chloroplast
(C) Mitochondria
(D) Nucleus
62. Which of the DNA segment has high melting point?
(A) GC rich segment
(B) AT rich segment
(C) Segment with AT and GC in equal number
(D) Segment with modified bases.
63. Wilt disease of cotton is caused by
(A) Cercospora moricola
(B) Phyllactonia corylea
(C) Fusarium oxysporum
(D) Clostridium tetani
64. Which of the following shows totipotency in plants?
(A) Collenchyma cells
(B) Meristem cells
(C) Xylem cells
(D) Sieve tube cells
65. Choose the correct ratio which shows the gene interaction
(A) $1: 2: 1$
(B) $1: 1$
(C) $9: 3: 3: 1$
(D) $12: 3: 1$
66. The internal respiratory system of insects is made up of
(A) Malphigian tubules
(B) Cement gland
(C) Choanocytes
(D) Tracheae
67. The carbanion make a bond with
(A) Electropositive group
(B) Electronegative group
(C) Only with an electrically neutral group
(D) With another carbanion
68. An example for anaerobic culture medium is
(A) Wilson blair medium
(B) Mac Conkey broth
(C) Robertson's cooked meat medium
(D) EMB agar
69. The cell theory is not applicable to
(A) Fungi
(B) Algae
(C) Viruses
(D) Bacteria
70. Silk wastes produced during reeling are used for preparing
(A) Raw silk
(B) Spun silk
(C) Twisted silk
(D) Tussah silk
71. Ecotone is best described as the
(A) Potentiality of an animal to adjust to new circumstances
(B) Transition zone between two or more diverse communities
(C) Maximum biomass an ecosystem can support
(D) State of equilibrium among various trophic levels in an ecosystem
72. Watson-Crick double stranded DNA is an example for
(A) A-DNA
(B) Z-DNA
(C) C-DNA
(D) B-DNA
73. An enzyme which joins the Okazaki fragments during DNA replication is
(A) DNA helicase
(B) DNA polymerase
(C) DNA ligase
(D) DNA synthase
74. Following organells are involved in cytoplasmic inheritance
(A) Mitochondria and Golgi complex
(B) Chloroplast and lysosome
(C) Mitochondria and chloroplast
(D) Microsomes and ribosomes
75. Heterospory is seen in
(A) Selaginella
(B) Psilotum
(C) Pteris
(D) Marselia
76. The chromatographic technique based on specific interactions is
(A) Affinity chromatography
(B) Gel filtration chromatography
(C) Gas chromatography
(D) Reverse phase HPLC.
77. The decrease in response to continuous stimulation is called
(A) Instinct
(B) Maturation
(C) Imprinting
(D) Habituation
78. Hydrolytic enzymes are present in
(A) Flagella
(B) Lysosome
(C) Chloroplast
(D) Microsome
79. During transcription initiation, the RNA polymerase binds to
(A) Operator
(B) Enhancer
(C) Initiator
(D) Promoter
80. Shell coiling in Limnaea peregra (water snail) is an example of
(A) Biparental inheritance
(B) Predetermination
(C) Maternal effect
(D) Dauer-modification
81. The antibiotic that inhibits protein synthesis by binding to $23 S$ rRNA of the 50S subunit of ribosome is
(A) Streptomycin
(B) Chloramphenicol
(C) Penicillin
(D) Tetracycline
82. Which of these contain corrin ring system?
(A) Vitamin B12
(B) Hemoglobin
(C) Cytochromes
(D) Chlorophyll
83. The interaction between actin and myosin filaments during muscle contraction is explained by
(A) Sliding filament model
(B) Holliday model
(C) Action potential
(D) Liquid Mosaic model
84. 'Palmae' is the earlier name for the plant family
(A) Brassicaceae
(B) Arecaceae
(C) Clusiaceae
(D) Poaceae
85. The percent of fibroin present in the silk is
(A) $85-90 \%$
(B) $65-75 \%$
(C) $60-70 \%$
(D) $75-83 \%$
86. Benzene does not under go
(A) Addition reaction
(B) Nucleophillic substitution reaction
(C) Electrophillic substitution reaction
(D) Elimination reaction
87. Symbiotic association of mycorrhizal fungi in rhizosphere of plants helps in uptake of
(A) Calcium ions
(B) Potassium ions
(C) Phosphate ions
(D) Iron ions
88. Synthetic seeds are
(A) Encapsulated flowers
(B) Encapsulated stems
(C) Encapsulated roots
(D) Encapsulated embryos
89. The mutation induced by proflavin is
(A) Transition
(B) Transversion
(C) Inversions
(D) Frameshift
90. The peculiar feature of Echinodermata is having
(A) Caudal spine
(B) Tracheal system
(C) Water vascular system
(D) Chordotonal organs
91. How many perianth leaves are present in the mulberry flower?
(A) 6
(B) 4
(C) 8
(D) 2
92. The resolving power of unaided human eye is
(A) 100 micrometer
(B) 200 nanometer
(C) 1 centimeter
(D) 400 nanometer
93. The largest unit within which gene flow can readily occur is a
(A) Genus
(B) Hybrid
(C) Population
(D) Species
94. The gas produced in a sludge tank is
(A) Hydrogen
(B) Nitrogen
(C) Carbon dioxide
(D) Oxygen
95. In SDS-PAGE, the proteins get separated based on their
(A) Total charge
(B) Molecular weight
(C) Isoelectric point
(D) Amino acid sequence
96. The genetically modified bacteria used for removal of oil pollution is
(A) Pseudomonas putida
(B) Pseudomonas fluorescens
(C) Bacillus subtilis
(D) Bacillus thuringiensis
97. Plants absorb nitrogen in the form of
(A) Nitrous oxide
(B) Nitrogen dioxide
(C) Nitrates and ammonium ions
(D) Nitric oxide
98. In a honey bee colony, the worker bees are
(A) Sterile males
(B) Diploid sterile females
(C) Haploid males
(D) Females fed with royal jelly
99. The membrane around the vacuole is known as
(A) Elaioplast
(B) Cytoplast
(C) Amyloplast
(D) Tonoplast
100. What percent of RNA in a bacterial cell is mRNA?
(A) $10-15 \%$
(B) $35-40 \%$
(C) $<5 \%$
(D) $50-60 \%$
101. Heterocysts are seen in
(A) Nostoc
(B) Chlamydomonas
(C) Cladophora
(D) Spirogyra
102. Artificial hatching of diapaused silk moth eggs is achieved by
(A) Aestivation
(B) HCl treatment
(C) Formalin treatment
(D) NaOH treatment
103. In excision repair mechanism, nicking of DNA followed by adherence of a helicase called as
(A) Uvr A
(B) Uvr C
(C) Uvr D
(D) Uvr B
104. Concentrated sulphuric acid is diluted by
(A) Slowly adding sulphuric acid to water
(B) Slowly adding water to sulphuric acid
(C) Adding water while stirring sulphuric acid
(D) Adding ice cold water to sulphuric acid
105. Following are the branched polysaccharides, except
(A) Glycogen
(B) Starch
(C) Peptidoglycan
(D) Amylose

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## Rough Work

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 ఎంబదన్ను யరిరిలలిసిరి.



 జదాబ్దారరంగిరుత్తిర.


 లుత్తరతస్ను నిధణరిి.


 కుంబిర:



6. ఒండు నిదిషష్ట్రు
 ळలళెయల్లిన లుదాळరణ నైలణి.
 యృడ్బొలు.


 ஹอలగబळుడు.




 అంచగఆన్ను யֹడియత్ర్ప్దు.

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Note : English version of the instructions is printed on the front cover of this booklet.

