## UNIVERSITY OF MYSORE Postgraduate Entrance Examination October - 2022



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. Iodine is obtained from which of the following;
(A) Bryophytes
(B) Pteridophytes
(C) Algae
(D) Bacteria
7. Commensalism means
(A) both species suffer
(B) one species benefits and other species suffers
(C) both species benefits
(D) one species benefits and other species unaffected
8. Polytene chromosomes were first observed by ;
(A) Batanetzky -1980
(B) Heitz and Bauer - 1935
(C) Balbiani - 1881
(D) Stevens and Wilson - 1905
9. If two genes are widely separated, but present on the same chromosome then these genes will
(A) undergo independent assortment
(B) be linked
(C) be dominant
(D) be recessive
10. $\qquad$ amino acid is present in Pantothenic acid.
(A) $\beta$-alanine
(B) Aspartic acid
(C) $\beta$-amino isobutyric acid
(D) Glutamic acid
11. In Hershey and Chase experiment to prove DNA as genetic material, $\qquad$ was employed.
(A) Bacteria
(B) Bacteriophage
(C) Yeast
(D) Animal cells
12. Photo-chemical smog occurs due to the reaction of $\qquad$ .
(A) Fog and Smoke
(B) Smoke, Fog and Temperature
(C) Smoke, Fog and UV radiation
(D) Fog, Ozone and Smoke
13. Mulberry is propagated mainly through
(A) Seed
(B) Stem cuttings
(C) Bud graft
(D) Layering
14. Histamine is a derivative of $\qquad$ .
(A) Indole
(B) Imidazole
(C) Purine
(D) Pyrimidine
15. The following are components of compound microscope, except
(A) Stage clips
(B) Fine adjustment
(C) Electron gun
(D) Binocular eye piece
16. Agar is obtained from the alga $\qquad$ .
(A) Chondrus
(B) Ulva
(C) Gelidium
(D) Laminaria
17. Metamerically segmented, bilaterally symmetrical animals bearing jointed appendages. These are the characteristic features of
(A) Phylum Annelida
(B) Phylum Porifera
(C) Phylum Platyhelminthes
(D) Phylum Arthropoda
18. The function bacterial endospore is for $\qquad$ .
(A) lipid synthesis
(B) survival
(C) protein synthesis
(D) storage
19. Chromosome theory of inheritance was proposed by
(A) Thomas Hunt Morgan
(B) Hugo DeVries
(C) Gregor Mendell
(D) Sutton and Boveri
20. Buffer action of hemoglobin is mainly due to;
(A) Glutamine residues
(B) Arginine residues
(C) Histidine residues
(D) Lysine residues
21. Which one of the following is the freshwater shark?
(A) Wallgo attu
(B) Cirrhinius mrigla
(C) Catal catla
(D) Labeo rohita
22. Recently identified amino acid is $\qquad$ ;
(A) GABA
(B) Citruline
(C) Allolysine
(D) Selenocysteine
23. Which one of them does not come under the organic addition reaction:
(A) Hydration
(B) Dehydration
(C) Halogenations
(D) Hydrohalogenation
24. Which of the following is a total root parasite?
(A) Cuscuta
(B) Rafflesia
(C) Santalum
(D) Mimosa
25. Byproduct of silk reeling is used to produce
(A) Spun silk
(B) Raw silk
(C) Synthetic silk
(D) Dupion silk
26. Which of the following is the typical feature of a prokaryotic cell?
(A) Absence of Chloroplast
(B) Absence of nucleus
(C) Absence of Mitochondria
(D) Absence of cell wall
27. Recombination percentage in a diploid cannot exceed;
(A) $50 \%$
(B) $25 \%$
(C) $75 \%$
(D) $10 \%$
28. Elephant tusks are modified;
(A) Canines
(B) Pre molars
(C) Incisors
(D) Molars
29. The protein which helps bacterial RNA polymerase to correctly bind the promoter is
(A) Transcription factor
(B) Rho factor
(C) Operator
(D) Sigma factor
30. Which of the following is NOT a five membered ring?
(A) Pyridine
(B) Pyrrole
(C) Furan
(D) Thiophene
31. Broiler breed is exclusively used for $\qquad$ in poultry industry.
(A) Egg production
(B) Meat production
(C) Both egg and meat production
(D) Breeding of egg and broiler chicks
32. Silk fibre is obtained from
(A) Fleece of sheep
(B) Cotton boll
(C) Cocoon
(D) Shiny jute stalk
33. Ribosomes in prokaryotic cells are;
(A) 80 S
(B) 70 S
(C) 60 S
(D) 50 S
34. Sago is obtained from $\qquad$ .
(A) Seeds of Angiosperms
(B) Fruits of cereals
(C) Capsules of Bryophytes
(D) Wood of Cycas
35. $\qquad$ is the causative organism of sleeping sickness.
(A) Leshmania donovani
(B) Wuchereria bancrofti
(C) Trypnosoma brucei
(D) Plasmodium vivax
36. Nitrogen mustard is an $\qquad$ ;
(A) base analogue
(B) alkylating agent
(C) intercalating agent
(D) deaminating agent
37. In lac operon the lac repressor binds to
(A) Promoter
(B) Operator
(C) Enhancer
(D) Silencer
38. Aspirin blocks the synthesis of
(A) Leukotrienes
(B) Prostaglandins and Thromboxanes
(C) Triglycerides
(D) Cholesterol
39. Estivation means;
(A) Winter sleeping
(B) Day sleeping
(C) Summer sleeping
(D) Night sleeping
40. Which among the following is NOT a property of ionic bond?
(A) Losing of electrons
(B) Gain of electrons
(C) Transfer of electrons
(D) Sharing of electrons
41. The function of plasma membrane is;
(A) Selectively permeable
(B) Impermeable
(C) Single phase flow
(D) Highly permeable
42. What will be the molarity of a solution, which contains 5.85 g of NaCl per 500 mL ?
(A) $4 \mathrm{~mol} \mathrm{~L}^{-1}$
(B) $20 \mathrm{~mol} \mathrm{~L}^{-1}$
(C) $0.2 \mathrm{~mol} \mathrm{~L}^{-1}$
(D) $2 \mathrm{~mol} \mathrm{~L}^{-1}$
43. Which of the following is best suited to get the surface view of an object?
(A) SEM
(B) TEM
(C) Polarizing microscope
(D) Compound microscope
44. Reeling of silk is
(A) Process of making silk reels
(B) Spinning of silk fibres
(C) Weaving of silk cloth
(D) Unwinding of silk filament from the cocoon
45. Venus flower basket is a
(A) Fresh water sponge
(B) A sea anemone resembling a flower basket
(C) Ornamental mollusk
(D) Sponge resembling the flower basket
46. Dinitrophenol is used as
(A) Uncoupler of ETC
(B) RNA synthesis inhibitor
(C) Protein synthesis inhibitor
(D) DNA synthesis activator
47. The percentage of 'ab’ gametes produced by 'AaBb' parent will be
(A) $25 \%$
(B) $50 \%$
(C) $75 \%$
(D) $12.5 \%$
48. Which of the following enzymes does not have proof reading activity?
(A) DNA Polymerase I
(B) Taq DNA Polymerase
(C) Pfu Polymerase
(D) Klenow fragment
49. National Dairy Research Institute (NDRI) is located at $\qquad$ .
(A) Ahmedabad
(B) Bangalore
(C) Chennai
(D) Karnal
50. Which of the following amino acids could serve as the best buffer at pH 7.0
(A) Glutamic acid
(B) Serine
(C) Histidine
(D) Aspartic acid
51. Mark the component which is not the part of lipid bilayer?
(A) Glycerol or Sphingosine
(B) Fatty acids
(C) Tryptophan and methionine
(D) Phosphate
52. Silkworms secrete fibre made of $\qquad$ ;
(A) Fat
(B) Cellulose
(C) Protein
(D) Nylon
53. Hybridoma Technology is used to produce;
(A) Interferons
(B) Monoclonal antibodies
(C) Antibodies
(D) Immune response
54. Aristotle's lantern is a characteristic feature of
(A) Brittle stars
(B) Star fishes
(C) Sea urchin
(D) Holothurians
55. $\qquad$ was the father of binomial nomenclature.
(A) Charles Darwin
(B) Carolus Linnaeus
(C) Robert Koch
(D) Louis Pasteur
56. The reason why Glucose is phosphorylated immediately after being transported into cell is
(A) Phosphorylation of glucose makes it impermeable from the cell
(B) It can undergo substrate level phosphorylation
(C) For its use in glycolysis
(D) For degradation of glycogen
57. Which of the following DNA sequencing method is called- chain termination method?
(A) Sanger's method
(B) Maxam-Gilbert method
(C) Edman method
(D) DNA chip method
58. Green house effect occurs due to the emission of $\qquad$ .
(A) Carbon dioxide, Carbon monoxide, methane, Ozone, Hydroflurocarbons, Chlorofluorocarbons and water vapour
(B) Carbon dioxide, Carbon monoxide, oxygen, Ozone, Hydrogen and Fluorocarbons
(C) Oxides of Carbon, hydrogen, oxygen, nitrogen and sulphur
(D) Carbon dioxide, Carbon monoxide, oxides of nitrogen, sulphur and water vapour
59. The vitamin essential for blood clotting is $\qquad$ .
(A) Vitamin A
(B) Vitamin B
(C) Vitamin C
(D) Vitamin K
60. In Drosophila XXY chromosomes result in
(A) Gynandromorphs
(B) females
(C) males
(D) bisexual flies
61. In India, silkworm germplasm is situated at $\qquad$ ;
(A) Mysuru
(B) Bengaluru
(C) Berhampore
(D) Hosur
62. A mixture of four proteins are listed below. Which should elute second in size exclusion (gel-filtration) chromatography using sephadex G50.
(A) Cytochrome с $\mathrm{Mr}=13,000$
(B) Insulin $\mathrm{Mr}=5,800$
(C) Protease $\mathrm{Mr}=24,000$
(D) Albumin $\mathrm{Mr}=60,000$
63. Molarity of water is
(A) 22.2
(B) 33.3
(C) 44.4
(D) 55.5
64. Lipid layered body can be used for drug delivery is;
(A) Cholesterol
(B) Lipid raft
(C) Micelle
(D) Liposome
65. $\qquad$ is a connecting link between amphibians and reptiles.
(A) Coelocanth
(B) Sphenodon
(C) Peripatus
(D) Archaeopteryx
66. The placenta is attached to the developing seeds near the $\qquad$ .
(A) Testa
(B) Hilum
(C) Micropyle
(D) Chalaza
67. In a cross between individuals homozygous for ( $\mathrm{X}, \mathrm{Y}$ ) and wild type (+,+). In this cross 800 out of 1000 individuals were of parental type. The distance between X and Y is:
(A) 80 map units
(B) 25 map units
(C) 20 map units
(D) 10 map units
68. Up take of naked DNA by a bacterial cell is called; transformed is called
(A) Conjugation
(B) Transduction
(C) Transformation
(D) Transfection
69. Ti plasmids are used in
(A) Genetic manipulation of plants
(B) YACS
(C) Animals
(D) BACS
70. N-acetyl neuraminic acid is also called as
(A) Butyric acid
(B) Valeric acid
(C) Caproic acid
(D) Sialic acid
71. In India, commercial raw silk is produced from hybrid by crossing of Multivoltine with
(A) Univoltine
(B) Bivoltine
(C) Multivoltine
(D) Mutant
72. The cause of Minamata disease is $\qquad$ .
(A) Fluoride
(B) Lead
(C) Mercury
(D) Sulphur
73. Nucleotide bases and aromatic amino acids absorb maximum light respectively at
(A) 280 and 260 nm
(B) 260 and 280 nm
(C) 260 and 270 nm
(D) 250 and 270 nm
74. Which of the following transport mechanism does not use metabolic energy?
(A) Secondary active transport
(B) Primary active transport
(C) Active transport
(D) Passive transport
75. The waxy substances associated with the wall of cork cells is;
(A) Cellulose
(B) Lignin
(C) Hemicellulose
(D) Suberin
76. Reabsorption of useful substances from glomerular filtrate occurs in $\qquad$ .
(A) Collecting tubule
(B) Loop of Henle
(C) Proximal convoluted tubule
(D) Distal convoluted tubule
77. The primary food plant of tropical tasar silkworm is $\qquad$ .
(A) Champak
(B) Catsor
(C) Soalu
(D) Arjun
78. Which combination of biomolecules is commonly seen in nature?
(A) D amino acids and L sugars
(B) L amino acids and D sugars
(C) D amino acids and D sugars
(D) L amino acids and L sugars
79. SCID (Severe Combined Immuno Deficiency) is a fatal genetic defect that affects the function of T cells. This disease primarily affects males and females are carriers. Which of the following describes the most suitable pattern of inheritance?
(A) Y-linked recessive
(B) X-linked dominant
(C) Autosomal recessive
(D) X-linked recessive
80. Which of the following is not a part of histone octamer?
(A) Histone H2A
(B) Histone H4
(C) Histone H1
(D) Histone H3
81. $\qquad$ is an oxygen carrier found in the nitrogen-fixing root nodules of leguminous plants.
(A) Haemoglobin
(B) Leghaemoglobin
(C) Chlorophyll
(D) Bacteriorhodopsin
82. Innate immunity involves all except-
(A) Anatomic barriers,
(B) phagocytic
(C) inflammatory mechanisms,
(D) antibody production
83. In India, muga silk is mainly practised in
(A) Assam
(B) Bihar
(C) Manipur
(D) Mizoram
84. The domesticated non-mulberry silkworm is
(A) Eri silkworm
(B) Muga silkworm
(C) Tasar silkworm
(D) Fagara silkworm
85. Which of the following doesn't have a resonating structure?
(A) Napthalene
(B) Anthracene
(C) Diphenyl
(D) Cyclohexane
86. Bulb is a modified;
(A) Stem
(B) Root
(C) Radicle
(D) Plumule
87. Apomixis is a type of reproduction that results in the development of a
$\qquad$ _.
(A) new organism without fusion of gametes
(B) new organism from fusion products of gametes
(C) embryo from endosperm
(D) embryo from nucleus
88. Name the family of transport proteins, which allows the water to cross the membrane?
(A) Facilitated diffusion
(B) Ion channels
(C) Aquaporins
(D) Active transport
89. $\qquad$ blood vessel brings blood to the lungs.
(A) Pulmonary vein
(B) Pulmonary artery
(C) Hepatic vein
(D) Hepatic artery
90. The scientific name of leaf roller infesting mulberry is
(A) Spilosoma obliqua
(B) Diuaphania pulverulentalis
(C) Spodoptera litura
(D) Empoasca favescens
91. Multiple alleles are present
(A) in different chromosomes
(B) at different loci on chromosomes
(C) at the same locus on homologous chromosomes
(D) at the same locus on non-homologous chromosomes
92. The time required for a cell to undergo binary fission is called;
(A) exponential growth rate
(B) growth curve
(C) lag period
(D) generation time
93. Molecular weight of NaOH is 40 . The amount of pure NaOH required to make 250 ml of 0.1 N NaOH is
(A) 1 gm
(B) 4 gm
(C) 10 gm
(D) 40 gm
94. The device used to introduce air into the fermentation broth is called
(A) Baffles
(B) Sparger
(C) Impeller
(D) Propellers
95. A specific inhibitor for succinate dehydrogenase is
(A) Arsenite
(B) Fluoride
(C) Citrate
(D) Malonate
96. Idiotypic determinants are located within
(A) Hypervariable regions of heavy and light chain
(B) Constant regions of light chains
(C) Constant regions of heavy chains
(D) The hinge region
97. The temperature-pressure combination for an autoclave is
(A) $100^{\circ} \mathrm{C}$ and 4 psi
(B) $115^{\circ} \mathrm{C}$ and 3 psi
(C) $131^{\circ} \mathrm{C}$ and 9 psi
(D) $121^{\circ} \mathrm{C}$ and 15 psi
98. During 4th and 5th instar, the silkworm larvae consume $\qquad$ of its total consumption of mulberry leaves.
(A) $93.67 \%$
(B) $80.60 \%$
(C) 76.13\%
(D) $85.25 \%$
99. Secondary metabolites of microbes are formed during the phase of growth.
(A) exponential
(B) stationary
(C) death
(D) lag
100. Which of the following is the largest single membrane-bound intracellular compartment?
(A) Ribosome
(B) Golgi apparatus
(C) Nucleus
(D) Endoplasmic reticulum
101. Myco-remediation refers to use of
(A) viruses for environmental cleaning
(B) bacteria for environmental cleaning
(C) algae for environmental cleaning
(D) fungi for environmental cleaning
102. Downy mildew of grape is caused by the fungus
(A) Plasmopara viticola
(B) Alternaria solani
(C) Aspergillus flavus
(D) Fusarium verticillioides
103. The nucleic acid found in virus is
(A) DNA only
(B) RNA only
(C) both DNA and RNA
(D) either DNA or RNA
104. The natural mineral fibre is7
(A) Silk
(B) Asbestos
(C) Rayon
(D) Nylon
105. Bird's egg undergoes $\qquad$ cleavage.
(A) Radial
(B) Holoblastic
(C) Superficial
(D) Discoidal

## 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.

