

GMCH COMBINED ENTRANCE TEST (GCET-2023)
Paper for 10+2 – Medical Group: Physics, Chemistry, Biology for
All Courses
QUESTION BOOKLET

Time: 120 Minutes

Number of Question: 100

Maximum Marks: 100

Roll Number: In figure

In Words

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Signature of the Candidate: _____

DO NOT OPEN THE SEAL ON THE BOOKLET UNTIL ASKED TO DO SO

INSTRUCTIONS-

1. Write your Roll Number and other details on the Question Booklet and also on the OMR Sheet in the spaces provided.
2. Do not make any identification marks on the OMR Answer Sheet or Question Booklet.
3. Please check that the Question Booklet contains 100 questions. In case of any discrepancy, inform the Assistant Superintendent/Invigilator within 10 minutes of the start of the test.
4. Each question has four alternative answer (A, B, C, D) out of which **only one is correct**. For each question, **darken only one bubble** (A, B, C, or D), whichever you think is the correct answer, on the OMR Answer sheet with **Blue / Black Ball Pen only**. Do not use Gel Pen/ ink pen /Pencil etc. Do not Tick \surd or \times on the OMR Sheet.
5. Darken the bubbles in the OMR Answer Sheet according to the Serial No. of the Questions given the Question Booklet.
6. In case more than one bubble is darkened no marks will be given and the question will be treated as wrong.
7. There will be no negative marking. If you do not want to answer a question, leave all the bubbles corresponding to that question blank in the OMR Answer sheet.
8. For rough work, use the blank sheet at the end of the Question Booklet.
9. The question paper includes 50 MCQ biology (1-50), 25 MCQ Chemistry (51-75) and 25 MCQ Physics (76-100).
10. The OMR Answer sheet is designed for computer evaluation. Therefore, if you do not follow the instructions given on the OMR Answer sheet, it may make evaluation by the computer difficult. Any resultant loss to the candidates on the above account, i.e. not following instructions completely and properly, shall be the responsibility of the candidates only.
11. After the test, handover the Question Booklet and OMR sheet to the Invigilator on duty.
12. Candidate who creates disturbance of any kind or changes his/her seat or is found in possession of any paper or the any assistance or found giving or receiving assistance or found using any other unfair means during the examination will be expelled from the examination by the Centre superintendent/Observer whose decision shall be final.
13. Telecommunication equipment such as pager, cellular phone, wireless, scanner, smart watch/watch etc. is not permitted inside the examination hall. Use of calculators is not allowed.
14. Candidate should ensure accuracy of their personal details on the OMR Sheet i.e. Name and Roll No., signature and Left thumb impression. The personal details are to be filled in by the candidates with his/her own hand writing.

1. In the following, both autogamy and geitonogamy are prevented:
 - A. Castor
 - B. Maize
 - C. Wheat
 - D. Papaya
2. The following juice secreted in the alimentary canal helps in the digestion of fats:
 - A. Salivary amylase
 - B. Hydrochloric acid
 - C. Lipase
 - D. Pepsin
3. The thick wall of a fruit that develops from the ovary is called
 - A. Parenchyma
 - B. Hilum
 - C. Pleurae
 - D. Pericarp
4. Lysosomes are produced by
 - A. Mitochondria
 - B. Leucoplasts
 - C. Nuclear membrane
 - D. Golgi bodies
5. The local population of a particular area is known by a term called
 - A. Locals
 - B. Race
 - C. Villagers
 - D. Demes
6. The process of the production of non-parental phenotypes is called:
 - A. Linkage
 - B. Recombination
 - C. Mutation
 - D. Replication
7. Filiform apparatus occurs in
 - A. Synergids
 - B. Antipodals
 - C. Egg nucleus
 - D. Secondary nucleus
8. Which one of the following is commonly used for transfer of foreign DNA into crop plants?
 - A. Trichoderma
 - B. Meloidogyne
 - C. Agrobacterium
 - D. Penicillium
9. Which of the following is obtained from genetic engineering?
 - A. Haemoglobin
 - B. Glucose
 - C. Golden rice
 - D. None of these
10. Gynecomastia is a common feature seen in
 - A. Down's syndrome
 - B. Turner's syndrome
 - C. Phenylketonuria
 - D. Klinefelter's syndrome
11. DNA fingerprinting technique was discovered by
 - A. Wilmut
 - B. Jeffrey's
 - C. Einthoven
 - D. Kary Mullis
12. Which of the following oxidation require FAD as electron acceptor?
 - A. Alpha-ketoglutarate \rightarrow Succinyl Co-A
 - B. Succinic acid \rightarrow Fumaric acid
 - C. Succinyl Co-A \rightarrow Succinic Acid
 - D. Fumaric acid \rightarrow Malic acid
13. Photosynthetically Active Region (PAR) have the electromagnetic region of
 - A. 100-200 nm
 - B. 200-400 nm
 - C. 400-700 nm
 - D. 800-900 nm
14. Bt toxins are initially inactive protoxins but after ingestion by insects their inactive toxin becomes active due to the
 - A. Alkaline pH of the gut
 - B. Acidic pH of the gut
 - C. Temperature of the gut
 - D. Hormone present in the gut
15. The role of DNA ligase in the construction of a recombinant DNA molecule is
 - A. Formation of phosphodiester bond between two DNA fragments
 - B. Formation of hydrogen bonds between sticky ends of DNA fragments
 - C. Ligation of all purine and pyrimidine bases
 - D. None of the above

16. Which one of these microbes is used in the commercial production of butyric acid?
- Clostridium butylicum*
 - Streptococcus butylicum*
 - Trichoderma polysporum*
 - Saccharomyces cerevisiae*
17. Baker's yeast is
- Propionibacterium shermanii*
 - Saccharomyces cerevisiae*
 - Trichoderma polysporum*
 - Lactobacillus*
18. The Infective stage of *Plasmodium* in humans is
- Merozoites
 - Ookinetes
 - Sporozoites
 - None of these
19. Mutational theory of evolution was given by
- Charles Darwin
 - Robert Brown
 - Oparin
 - Hugo de Vries
20. Negatively regulatory proteins are called
- Repressor
 - Catalytic proteins
 - Accessory proteins
 - All of the above
21. Phenylketonuria disease is a/an
- Autosomal dominant
 - Autosomal recessive
 - Sex-linked recessive
 - Sex-linked dominant
22. Difference between ZIFT and IUT lies in
- Methodology of fertilisation
 - Nature of the sperms that fuse ova
 - Nature of the cells transferred
 - Number of the cells transferred
23. Plants having little or no secondary growth are
- Conifers
 - Deciduous angiosperms
 - Grasses
 - Cycads
24. In which part of the plant is the Quiescent centre found:
- Root tip
 - Leaf tip
 - Shoot tip
 - Cambium
25. The actin binding sites are present in the following muscle component :
- Troponin
 - Tropomyosin
 - Meromyosin
 - Intercalated disc
26. If an organism does not have Loop of Henle, it will result in
- No urine excretion
 - Dilute urine
 - Concentrated urine
 - No change in urine
27. Winged pollen grains are present in:
- Mango
 - Cycas
 - Mustard
 - Pinus
28. Emphysema is caused by damage to the
- Trachea
 - Bronchi
 - Alveoli
 - Pulmonary vessels
29. Wilson's disease is associated with the abnormal metabolism of
- Iron
 - Potassium
 - Iodine
 - Copper
30. The phyto-hormone that was first isolated from human urine is
- Auxin
 - ABA
 - Ethylene
 - Gibberellic acid
31. During which stage of spermatogenesis are the chromosomes associated with tetrads:
- Pachytene
 - Leptotene
 - Zygotene
 - Diplotene

32. Malacophily is pollination by
 A. Insects
 B. Birds
 C. Snails
 D. Mammals
33. Male gametes whether 2-celled or 3-celled are identical in genetic make-up because of
 A. Mitosis
 B. Meiosis
 C. Amitosis
 D. Binary fission
34. ICSI stands for
 A. Intra Cytoplasmic Smegma Infusion
 B. Intra Cytoplasmic Sperm Injection
 C. Intra Cytoplasmic Sperm Incubation
 D. Intra Cervical Semen Injection
35. In thalassemia, the affected chain/s of haemoglobin is/are
 A. alpha-globin chain
 B. beta-globin chain
 C. Both (A) and (B)
 D. None of these
36. Conversion of milk to curd improves its nutritional value by increasing the amount of:
 A. Vitamin D
 B. Vitamin A
 C. Vitamin B-12
 D. Vitamin E
37. The overlapping zone in between two ecosystems is known as:
 A. Ecozone
 B. Biotope
 C. Ecotone
 D. Horizon
38. The first experimental proof for semiconservative replication of DNA was shown in a:
 A. Plant
 B. Virus
 C. Fungus
 D. Bacterium
39. Genes which are located only in the Y-chromosome are known as:
 A. Epistatic genes
 B. Holandric genes
 C. Operator genes
 D. Anti-epistasis genes
40. The following is a hormone releasing IUD:
 A. Cu7
 B. LNG-20
 C. Lippes loop
 D. Multiload 375
41. The hormone responsible for uterine contraction during parturition is
 A. Relaxin
 B. Vasopressin
 C. Oxytocin
 D. Prolactin
42. The following plant shows a very close relationship with a species of moth, where none of the two can complete its life cycle without the other
 A. Hydrilla
 B. Yucca
 C. Banana
 D. Viola
43. Coconut water from a tender coconut is:
 A. Immature embryo
 B. Degenerated nucellus
 C. Free nuclear endosperm
 D. Innermost layers of the seed coat
44. Stock and scion are used in:
 A. Grafting
 B. Cutting
 C. Layering
 D. Micro-propagation
45. Floc is
 A. a mesh-like structure formed by bacteria and fungi in sewage treatment.
 B. the primary sludge produced in sewage treatment.
 C. the effluent in primary treatment tank obtained during sewage treatment
 D. a type of bio-fortified food
46. The following population interactions is widely used in medical science for the production of antibiotics:
 A. Parasitism
 B. Amensalism
 C. Commensalism
 D. Mutualism

47. The ecosystem with the maximum biomass is
- Pond ecosystem
 - Lake ecosystem
 - Forest ecosystem
 - Grassland ecosystem
48. The drug Quinine is primarily:
- Antiviral
 - Anti-Malarial
 - Anti-Bacterial
 - Anti-Fungal
49. Industrial melanism is a/an:
- Effect of mutation
 - Effect of industrial pollution
 - Skin pigmentation in workers
 - Evidence of natural selection
50. DNA is not present in:
- Nucleus
 - Chloroplast
 - Ribosomes
 - Mitochondria
51. The empirical formula and molecular mass of a compound are CH_2O and 180g respectively. Its molecular formula will be:
- $\text{C}_9\text{H}_{18}\text{O}_9$
 - CH_2O
 - $\text{C}_6\text{H}_{12}\text{O}_6$
 - $\text{C}_2\text{H}_4\text{O}_2$
52. The following statement about the electron is NOT CORRECT:
- It is a negatively charged particle
 - The mass of electron is equal to the mass of neutron
 - It is a basic constituent of all atoms
 - It is a constituent of cathode rays
53. The elements in which electrons are progressively filled in 4f- orbital are called
- Actinoids
 - Transition elements
 - Lanthanoids
 - Halogens
54. The following angle corresponds to sp^2 hybridisation
- 90°
 - 120°
 - 180°
 - 109°
55. The following property of water explains the spherical shape of rain droplets:
- Viscosity
 - Surface tension
 - Critical phenomena
 - Pressure
56. Acidity of BF_3 can be explained on the basis of which of the following concepts?
- Arrhenius concept
 - Bronsted Lowry concept
 - Lewis concept
 - Bronsted Lowry and Lewis concept
57. The radioactive isotope of hydrogen is
- Protium
 - Deuterium
 - Tritium
 - Hydronium
58. Alkali metals react with water vigorously to form hydroxides and dihydrogen. Which of the following alkali metals reacts with water LEAST vigorously?
- Li
 - Na
 - K
 - Cs
59. By adding gypsum to cement
- Setting time of cement becomes less
 - Setting time of cement increases
 - Colour of cement becomes light
 - Lustrous surface is obtained
60. Quartz is extensively used as a piezoelectric material, it contains
- Pb
 - Si
 - Ti
 - Sn

61. Isomerism is not possible in the following functional group
- Alcohols
 - Aldehydes
 - Alkyl halides
 - Cyanides
62. If sewage containing organic waste is disposed in water bodies, the fishes in such a polluted water die because of
- Large number of mosquitoes
 - Increase in the amount of dissolved oxygen
 - Decrease in the amount of dissolved oxygen
 - Clogging of gills by organic waste
63. The gaseous envelope around the earth is known as atmosphere. The lowest layer of this extends about 10 km from sea level, this layer is called
- Stratosphere
 - Troposphere
 - Mesosphere
 - Hydrosphere
64. Total number of orbitals associated with the third shell will be
- 2
 - 4
 - 9
 - 3
65. Silicon doped with electron rich impurity forms
- p-type semiconductor
 - n-type semiconductor
 - intrinsic semiconductor
 - insulator
66. Colligative properties depend on
- the nature of the solute particles dissolved in solution.
 - the number of solute particles in solution.
 - the physical properties of the solute particles dissolved in solution.
 - the nature of the solvent particles
67. At high concentration of soap in water, soap behaves as
- molecular colloid
 - associated colloid
 - macromolecular colloid
 - lyophilic colloid
68. Electrolytic refining can purify some metals. Identify the correct metal that can be purified by this method:
- Copper
 - Germanium
 - Zirconium
 - Mercury
69. Which of the following species is not expected to be a ligand?
- NO
 - NH_4^+
 - $\text{NH}_2\text{CH}_2\text{CH}_2\text{NH}_2$
 - CO
70. An example of a vic-dihalide is
- Dichloromethane
 - 1,2-dichloroethane
 - Ethylidene chloride
 - Allyl chloride
71. IUPAC name of m-cresol is
- 3-methylphenol
 - 3-chlorophenol
 - 3-methoxyphenol
 - benzene-1,3-diol
72. Reduction of aromatic nitro compounds using Fe and HCl gives
- aromatic oxime
 - aromatic hydrocarbon
 - aromatic primary amine
 - aromatic amide
73. Which of the following bases is not present in DNA?
- Adenine
 - Thymine
 - Cytosine
 - Uracil

74. The compound which is added to soap to impart antiseptic properties is
- Sodium lauryl sulphate
 - Sodium dodecylbenzenesulphonate
 - Rosin
 - Bithional
75. Freshly prepared precipitate sometimes gets converted to colloidal solution by
- Coagulation
 - Electrolysis
 - Diffusion
 - Peptisation
76. The potential difference across a 3 Ohm Resistor is 6 Volts. The current (Amperes) flowing in the resistor is:
- 0.5 amperes
 - 2.0 amperes
 - 4.0 amperes
 - 18 amperes
77. A coin (at rest) is dropped from the top of Qutab Minar and falls freely. What distance would it have fallen in 2 seconds ($g = 9.8 \text{ m/s}^2$)
- 4.9 metres
 - 9.8 metres
 - 19.6 metres
 - 29.4 metres
78. The Lift having Mass 100 kg is rising up with an acceleration of 4 metres / sec². The tension in the string is
- 1380 N
 - 1980 N
 - 2380 N
 - 5680 N
79. If the momentum of a body rises by 20% then its kinetic energy rises by
- 28%
 - 44%
 - 66%
 - 78%
80. A compound microscope has Objective of focal length 1.0 cm and eyepiece of focal length 2.0 cm. The tube length is 20 cm The magnification obtained is:
- 150
 - 200
 - 250
 - 400
81. If R is the radius of the earth, then the acceleration due to gravity will be $g/4$ at a height of
- R
 - 2R
 - R/2
 - 3R
82. Work done in stretching a wire per unit volume is: (x is multiply by)
- Stress x Strain
 - Stress / Strain
 - 1/2 Stress x Strain
 - 2 (Stress x Strain)
83. Water in a Capillary tube rises to a height of 6 cm. The area of cross-section of the capillary tube is made one fourth. The water will rise to
- 6 cm
 - 12 cm
 - 18 cm
 - 24 cm
84. An example of an electric generator is a
- Mixer-grinder
 - Electric car
 - Washing machine
 - Dynamo
85. A real gas satisfies the Ideal Gas Equation only at
- Low pressure, High Temperature
 - Low pressure, Low Temperature
 - High Pressure, High Temperature
 - High Pressure, Low temperature
86. A non-renewable source of energy is:
- Coal
 - Biomass
 - Hydroenergy
 - Wood
87. The following material may be used to make a Faraday cage:
- Plastic
 - Glass
 - Copper
 - Wood

88. An electric bulb is rated 220 Volts and 100 Watts. If it is operated at 110 Volts, the power consumed will be:
- 100 Watts
 - 75 Watts
 - 50 Watts
 - 25 Watts
89. A potential difference of 200V is maintained across a conductor of resistance 100 ohms. The number of electrons passing through it in One Second are:
- 1.25×10^{19}
 - 2.5×10^{18}
 - 1.25×10^{18}
 - 2.5×10^{16}
90. A man is standing 10 metres in front of a plane mirror. How far should he walk towards the mirror, so that he is 5 metres from his image
- 7.5 metres
 - 5 metres
 - 4.5 metres
 - 2.5 metres
91. The angle between the incident ray and the surface of the plain mirror is 35 degrees. The angle of reflection is:
- 35 degrees
 - 55 degrees
 - 70 degrees
 - 110 degrees
92. In a Compound Microscope, the images formed by the Objective AND Eye-piece are respectively:
- Real, Virtual
 - Virtual, Real
 - Real, Real
 - Virtual, Virtual
93. Taking the Bohr radius as $a_0=53$ pm, the radius of Li^{++} ion in its ground state on the basis of Bohr Model will be
- 53 pm
 - 27 pm
 - 18 pm
 - 13 pm
94. The first Indian satellite to be launched into space was:
- Aryabhata
 - Charaka
 - Bhaskara
 - Rohini
95. A ball of mass 0.2 kg is thrown vertically up with an initial velocity of 20 m/sec. The maximum potential energy it gains as it goes up will be:
- 20 J
 - 40 J
 - 60 J
 - 80 J
96. A 60 kg man pushes a 40 kg man by a force of 60 N. The 40 kg man has pushed the 60 kg man with a force of:
- 0 N
 - 20 N
 - 40 N
 - 60 N
97. When white light passes through a triangular prism, the maximum deviation occurs with the following colour:
- Violet
 - Green
 - Yellow
 - Red
98. Air is pushed into a soap bubble of radius r to double its radius. If the surface tension of the soap bubble is T , the work done is:
- $8 \pi r^2 T$
 - $12 \pi r^2 T$
 - $16 \pi r^2 T$
 - $24 \pi r^2 T$
99. The power of a lens is +2D. its focal length and type of lens is;
- 20 cm concave
 - 50 cm convex
 - 20 cm convex
 - 50 cm concave
100. Two resistances R and $2R$ are connected in parallel in an electric circuit. The thermal energy developed in R and $2R$ are in the ratio:
- 1:2
 - 2:1
 - 1:4
 - 4:1

Medical Group 10+2

Q No	Key	Q No	Key	Q No	Key	Q No	Key	Q No	Key
1	D	21	B	41	C	61	C	81	A
2	C	22	D	42	B	62	C	82	C
3	D	23	C	43	C	63	B	83	B
4	D	24	A	44	A	64	C	84	D
5	D	25	C	45	A	65	B	85	A
6	B	26	B	46	B	66	B	86	A
7	A	27	D	47	C	67	B	87	C
8	C	28	C	48	B	68	A	88	D
9	C	29	D	49	D	69	B	89	A
10	D	30	A	50	C	70	B	90	A
11	B	31	A	51	C	71	A	91	B
12	B	32	C	52	B	72	C	92	A
13	C	33	A	53	C	73	D	93	C
14	A	34	B	54	B	74	D	94	A
15	A	35	C	55	B	75	D	95	B
16	A	36	C	56	C	76	B	96	D
17	B	37	C	57	C	77	C	97	A
18	C	38	D	58	A	78	A	98	D
19	D	39	B	59	B	79	B	99	B
20	A	40	B	60	B	80	C	100	B