

NEW STANDARD ACADEMY

Test Type : 02

Do not open this Test Booklet until you are asked to do so.

11-8-2025

PRE-MEDICAL : 11th Undergoing Students

Read carefully the Instructions on the Back Cover of this Test Booklet.

Important Instructions :

1. On the answer sheet, fill in the particulars on Side-1 and Side -2 carefully with blue/black ball point pen only.
2. The test is of 3 hours 20 minutes duration and this Test Booklet contains 200 questions. Each question carries 4 marks. For each correct response, the candidate will get 4 marks. For each incorrect response, one mark will be deducted from the total scores. The maximum marks are 720.
3. In this Test Paper, each subject will consist of two sections. Section A will consist of 35 questions (all questions are mandatory) and Section B will have 15 questions. Candidate can choose to attempt any 10 question out of these 15 questions. In case if candidate attempts more than 10 questions, first 10 attempted questions will be considered for marking.
4. In case of more than one option correct in any question, the best correct option will be considered as answer.
5. Use Blue/Black Ball Point Pen only for writing particulars on this page/marking responses.
6. Rough work is to be done on the space provided for this purpose in the Test Booklet only.
7. On completion of the test, the candidate must hand over the Answer Sheet to the Invigilator before leaving the Room/Hall. The candidates are allowed to take away this Test Booklet with them.
8. The candidates should ensure that the Answer Sheet is not folded. Do not make any stray marks on the Answer Sheet. Do not write your Form No. anywhere else except in the specified space in the Test Booklet/Answer Sheet.
9. Use of white fluid for correction is not permissible on the Answer Sheet.

Name of the Candidate(In Capitals) _____

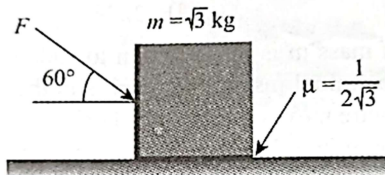
Date of Examination _____

Candidate's Signature: _____

Invigilator's Signature: _____

PHYISCS

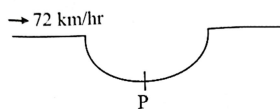
- A cyclist is moving on a circular track of radius 80 m with a velocity of 72 km/hr. He has to lean from the vertical approximately through an angle
 (a) $\tan^{-1}(1/4)$ (b) $\tan^{-1}(1)$
 (c) $\tan^{-1}(1/2)$ (d) $\tan^{-1}(2)$
- Keeping the banking angle same to increase the maximum speed with which a vehicle can travel on a curved road by 10%, the radius of curvature of road has to be changed from 20 m to
 (a) 16 m (b) 18 m
 (c) 24.25 m (d) 30.5 m
- What is the maximum value of the force F such that the block shown in the arrangement, does not move?



- (a) 20 N (b) 10 N
(c) 12 N (d) 15 N
- A heavy small sized sphere is suspended by a string of length l . The sphere rotates uniformly in a horizontal circle with the string making an angle θ with the vertical. Then the time period of this conical pendulum is-

(a) $T = 2\pi \sqrt{\frac{l}{g}}$ (b) $T = 2\pi \sqrt{\left(\frac{l \sin \theta}{g}\right)}$
 (c) $T = 2\pi \sqrt{\left(\frac{l \cos \theta}{g}\right)}$ (d) $T = 2\pi \sqrt{\left(\frac{l}{g \cos \theta}\right)}$

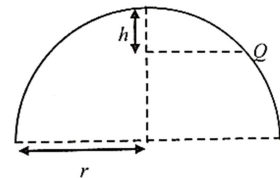
- A car while travelling at a speed of 72 km/hr. Passes through a curved portion of road in the form of an arc of a radius 10 m. If the mass of the car is 500 kg the reaction on the car at the lowest point P is



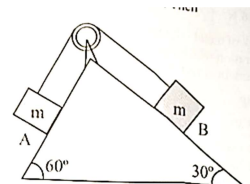
- (a) 25 kN (b) 50 kN
(c) 75 kN (d) None of these
- A car of mass 1000 kg moves on a circular path with constant speed of 16 m/s. It is turned by 90° after travelling 628 m on the road. The centripetal force acting on the car is
 (a) 160 N (b) 320 N
 (c) 640 N (d) 1280 N
 - If mass, speed and radius of rotation of a body moving in a circular path are all increased by 50%, the necessary force required to maintain the

body moving in the circular path will have to be increased by

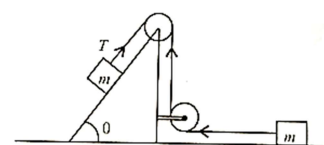
- (a) 225% (c) 125%
(c) 150% (d) 100%
- A particle P is moving in a circle of radius 'a' with a uniform speed v . C is the centre of the circle and AP is diameter. The angular velocity of P about A and Care in the ratio
 (a) 1:1 (b) 1:2
 (c) 2:1 (d) 4:1
 - A small body of mass m slides without friction from the top of a hemispherical cup of radius a as shown in the following figure. If it leaves the surface of the cup at a vertical distance 'h' below the highest point, then



- (a) $h = r$ (b) $h = r / 3$
(c) $h = r / 2$ (d) $h = 2r / 3$
- A point moves along a circle with velocity $v = at$ where $a = 0.5 \text{ m/s}^2$. Then the total acceleration of the point at the moment when it covered $(1/10)$ th of the circle after beginning of motion
 (a) 0.5 m/s^2 (b) 0.6 m/s^2
 (c) 0.7 m/s^2 (d) 0.8 m/s^2
 - Two blocks each of mass m are resting on a frictionless inclined plane as shown in figure. Then

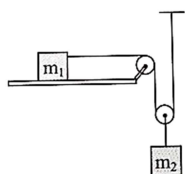


- (a) The block A moves down the plane
 (b) The block B moves down the plane
 (c) Both the blocks remains at rest
 (d) Both the blocks moves down the plane
- For the system shown in the figure, the pulleys are light and frictionless. The tension in the string will be



- (a) $\frac{2}{3} mg \sin \theta$ (b) $\frac{3}{2} mg \sin \theta$
 (c) $\frac{1}{2} mg \sin \theta$ (d) $2 mg \sin \theta$

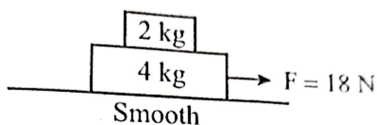
13. If the surface is smooth, the acceleration of the block m_2 will be



- (a) $\frac{m_2 g}{4m_1 + m_2}$ (b) $\frac{2m_2 g}{4m_1 + m_2}$
 (c) $\frac{2m_2 g}{m_1 + 4m_2}$ (d) $\frac{2m_2 g}{m_1 + m_2}$
14. Two blocks of mass $M_1 = 20\text{ kg}$ and $M_2 = 12\text{ kg}$ are connected by a metal rod of mass . The system is pulled vertically up by applying a force of 480 N as shown. The tension at the lowest-point of the rod is



- (a) 190 N (b) 200 N
 (c) 240 N (d) 144 N
15. There is no slipping between the two blocks. What is force of friction between two blocks?



- (a) Zero (b) 9 N
 (c) 12 N (d) 6 N

CHEMISTRY

16. The hydration of ionic compounds involves
 (a) Evolution of heat
 (b) Weakening of attractive forces
 (c) Dissociation into ions
 (d) All of the above
17. The electronic configuration of metal M is $1s^2 2s^2 2p^6 3s^1$. The formula of its oxide will be
 (a) MO (b) M_2O
 (c) M_2O_3 (d) MO_2
18. Consider two elements with atomic no. 37 and 53, the bond between their atoms would be
 (a) Covalent (b) Ionic
 (c) Coordinate (d) Metallic
19. Which type of bond is not present in HNO_2 molecule?
 (a) Covalent (b) Coordinate
 (c) Ionic (d) Both (a) and (c)
20. The lattice energy of the lithium is in the following order:
 (a) $LiF > LiCl > LiBr > LiI$
 (b) $LiCl > LiF > LiBr > LiI$

- (c) $LiBr > LiCl > LiF > LiI$
 (d) $LiI > LiBr > LiCl > LiF$
21. Pick out the wrong statement.
 (a) LiF has less solubility in water than LiI.
 (b) Lattice energy of MgO is greater than Na_2O
 (c) LiH is more stable than KH.
 (d) KO_2 is diamagnetic and colourless.
22. According to Fajans' rules, necessary condition to form covalent bond is
 (a) small cation and large anion
 (b) small cation and small anion
 (c) large cation and large anion
 (d) large cation and small anion
23. A sigma bond is formed by the overlapping of
 (a) S - S orbital alone
 (b) s and p orbitals alone
 (c) s - s s - p or p - p orbitals along internuclear axis
 (d) p - p orbital along the sides
24. The triple bond in $C \equiv O$ is made up of
 (a) Three sigma bonds
 (b) Three π -bonds
 (c) One sigma and two π -bonds
 (d) Two sigma and one π -bond
25. The number of coordinate bonds presents in SO_3 molecule are
 (a) 1 (b) 2
 (c) 3 (d) 4
26. The shape of sulphate ion is
 (a) Hexagonal (b) Square planar
 (c) Trigonal bipyramidal
 (d) Tetrahedral
27. Descending order of electronegativity of sp^3 sp^2 and sp hybridised orbitals
 (a) sp^2, sp, sp^3 (b) sp^3, sp^2, sp
 (c) sp, sp^2, sp^3 (d) sp, sp^3, sp^2
28. Each lone pair of electrons decreases the bond angle by about
 (a) 1° (b) 2.5°
 (c) 5° (d) 10°
29. A molecule is square planar with no lone pair. What type of hybridisation is associated with it?
 (a) $sp^3 d$ (b) $s p^3 d^2$
 (c) dsp^3 (d) dsp^2
30. Which of the following has pyramidal shape?
 (a) BF_3 (b) H_3O^+
 (c) NO_3^- (d) CO_3^{2-}

BIOLOGY

31. Identify the vertebrate group of animals characterized by crop and gizzard in its digestive system.
 (a) Aves (b) Reptilia
 (c) Amphibia (d) Osteichthyes
32. Which one of these animals is not a homeotherm?

- (a) Macropus (b) Chelone
(c) Camelus (d) Psittacula
33. Match the following columns and select the correct option.
- | | |
|-----------------------------|----------------------|
| Column-I | Column-II |
| A. 6-15 pairs of gill slits | (i) Trygon |
| B. Heterocercal caudal fin | (ii) Cyclostomes |
| C. Air Bladder | (iii) Chondrichthyes |
| D. Poison sting | (iv) Osteichthyes |
- Select the correct option:
- (a) A-(i), B-(iv), C-(iii), D-(ii)
(b) A-(ii), B-(iii), C-(iv), D-(i)
(c) A-(iii), B-(iv), C-(i), D-(ii)
(d) A-(iv), B-(ii), C-(iii), D-(i)
34. Notochord a characteristic feature of chordates is derived from
- (a) Ectoderm (b) Mesoderm
(c) Endoderm (d) Both (a) & (b)
35. A permanent notochord is present in
- (a) Herdmania (b) Amphioxus
(c) Balanoglossus (d) All of these
36. Given below is a list of some animals
- (I) Snake (II) Lizards
(III) Salamander (IV) Scorpion
(V) Ascaris
- Which of the animals mentioned above have post anal tail and are chordates?
- (a) (I) & (II) only
(b) (I) (II) & (III) only
(c) (II) (III) & (IV) only
(d) (III) (IV) & (V) only
37. Choose the incorrect feature with respect to cyclostomes:
- (a) Ectoparasites on some fishes
(b) Sucking mouth with Jaws
(c) Closed circulation
(d) Devoid of scales and paired fins
38. In which of the following the larvae after metamorphosis will return to the ocean ?
- (a) Petromyzon (b) Salpa
(c) Amphioxus (d) Ascidia
39. The jawless vertebrates (Agnatha) are primitive craniates which are characterized by all of the following characters, except
- (a) Closed type of circulation
(b) Presence of paired appendages
(c) Absence of jaws
(d) Absence of scales
40. Which of the following fish possesses four pairs of gills which are covered by operculum?
- (a) Scoliodon (b) Pristis
(c) Trygon (d) Pterophyllum
41. Which of the following vertebrate has a sucking and circular mouth without jaw?

- (a) Carcharodon (b) Labeo
(c) Petromyzon (d) Torpedo
42. Mark the incorrect match
- (a) Petromyzon and Myxine Jawless vertebrates
(b) Scoliodon and Pristis Cartilaginous fishes
(c) Exocoetus and dog fish → Placoid scales
(d) Betta and Pterophyllum Aquarium fishes
43. Skin is covered with cycloid/ctenoid scales in
- (a) Scoliodon (b) Labeo
(c) Trygon (d) Pristis
44. Electric organs are present in
- (a) Scoliodon (b) Torpedo
(c) Rohu (d) Catla
45. Which of the following fish has to swim constantly to avoid sinking?
- (a) Exocoetus (b) Hippocampus
(c) Clarias (d) Trygon
46. Match list I with list II and give the correct answer from the code given below the lists:
- | List I (Common name) | List II (Generic name) |
|----------------------|------------------------|
| (A) Flying fish | (I) Pristis |
| (B) Saw fish | (II) Clarias |
| (C) Fighting fish | (III) Betta |
| (D) Magur | (IV) Exocoetus |
- | | | | |
|-----------|-------|-------|------|
| (A) | (B) | (C) | (D) |
| (a) (IV) | (I) | (III) | (II) |
| (b) (II) | (I) | (III) | (IV) |
| (c) (III) | (I) | (IV) | (II) |
| (d) (IV) | (III) | (II) | (I) |
47. Consider the given statement:
- (I) Cloaca is present
(II) Body is divided into head and neck
(III) Eyes are covered by eyelids
(IV) Oviparous and indirect development
- How many of them are correct w.r.t amphibian?
- (a) One (b) Two
(c) Three. (d) Four
48. Which of the following is a limbless amphibian?
- (a) Hyla (b) Clarias
(c) Ichthyophis. (d) Bufo
49. All of the following animals have two auricles and one ventricle, except
- (a) Bufo (b) Salamander
(c) Hyla. (d) Testudo
50. Air sacs connected to lungs supplement respiration is a characteristic feature of
- (a) Chelone (b) Calotes
(c) Columba. (d) Testudo
51. All birds have
- (a) Oil gland at the base of tail
(b) Feather on their body and can fly
(c) Nests to care their babies
(d) Internal fertilization, are oviparous and eggs are covered with calcareous shell.

52. Which of the animal group has oxygenated and deoxygenated blood in the heart separately
- Amphibians and reptiles
 - Birds and mammals.
 - Reptiles and birds
 - Reptiles & mammals

53. Indian peacock is national bird and its zoological name is

- Pavo cristatus
- Passer domesticus
- Columbia livia
- Struthio

54. Which statement w.r.t mammal is not true?

- Unique character is presence of mammary glands.
- All mammals are viviparous..
- They are all homeothermic.
- Development is direct and fertilization in internal.

55. Mammals show following features, except

- Presence of external ear of pinnae
- Homoiothermous
- Internal fertilization and direct development
- Similar types of teeth are present in the jaw.

56. Find the mismatched pair:

- Macaca-Monkey
- Felis-Dog
- Balaenoptera-Blue whale
- Macropus-Kangaroo

57. Mammary glands are present in

- Terrestrial mammals only
- Viviparous mammals only
- All vertebrates
- All mammals

58. Which of the following is incorrect match about the class mentioned and its distinctive features?

Class	Distinctive features
(a) Chondrichthyes	Placoid scales, absence of air bladder, in males pelvic fins bear claspers, internal fertilization and many of them are viviparous
(b) Amphibia	Skin is moist without scales, oviparous and development is indirect
(c) Aves	Skin is dry without glands except the oil gland at the base of the tail, long bones pneumatic, oviparous development is direct
(d) Mammalia	Mammary glands, hair, external ears pinnae are present. They are

viviparous without exception and development is direct, dicondylic skull

59. Which of the following is correct matching of phylum, its coelom and distinctive features?

	Phylum	Coelom	Distinctive features
(1)	Ctenophora	Acoelomate	Comb plates for locomotion- Tentacles contain colloblast cells. Medusa phase absent
(2)	Mollusca	Coelomate	They are usually dioecious, oviparous with indirect development
(3)	Hemi-chordate	Coelomate	Worm like with proboscis, collar and trunk. Circulatory system is closed
(4)	Echinodermata	Coelomate	Water vascular system, radial symmetry. Fertilization is usually internal

IN EACH OF THE FOLLOWING QUESTION, A STATEMENT OF ASSERTION IS FOLLOWED BY A CORRESPONDING STATEMENT OF REASON. MARK THE CORRECT ANSWER AS PER THE INSTRUCTIONS GIVEN BELOW.

(1) If both Assertion and Reason are true and Reason is the correct explanation of Assertion.

(2) If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.

(3) If Assertion is true but Reason is false.

(4) If both Assertion and Reason are false.

60. Assertion: Chondrichthyes swim constantly in water body to avoid sinking.

Reason: In chondrichthyes, air bladder is not found.

61. Assertion: Reptiles are cold-blooded animals.

Reason: Reptiles possess eggs with shell which help them to adapt to land environment.

IN THE FOLLOWING QUESTIONS, STATEMENT I IS FOLLOWED BY STATEMENT II. EACH QUESTION HAS THE FOLLOWING FOUR CHOICES OUT OF WHICH ONLY ONE IS CORRECT.

(1) Both statement I and statement II are true

(2) Both statement I and statement II are false

(3) Statement I is true, and statement II is false

(4) Statement I is false, and statement II is true

62. Statement I: All vertebrates are chordates, but all chordates are not vertebrates.
Statement II: In vertebrates, notochord is replaced by a cartilaginous or bony vertebral column in the adult.
63. Statement I: Chondrichthyes have to swim constantly to avoid sinking.
Statement II: In Chondrichthyes, air bladder is absent.
64. Statement I: Amphibians are poikilothermal.
Statement II: Amphibians can regulate their body temperature.
65. Statement I: The members of platyhelminthes are commonly called flatworms.
Statement II: Platyhelminthes have dorsoventrally flattened body.
66. Statement I: All the members of Animalia have three germinal layers.
Statement II: All vertebrates are chordates.
67. Statement I: In urochordates, notochord extends from head to tail and persists throughout life.
Statement II: Chordates have a ventral heart and a post anal tail.
68. Statement I: Arthropoda is the largest phylum of the animal kingdom.
Statement II: Mollusca is the second largest phylum.
69. Statement I: Respiration occurs through general body surface in cephalochordates.
Statement II: In cephalochordates, notochord is present in the tail of larva.
70. Statement I: Choanocytes or collar cells line the spongocoel and the canals in poriferans.
Statement II: Sponges have endoskeleton of spicules or spongin fibres.