Zephyr is conducting state level Talent Test on 05 JANUARY 2020 for students studying in class VII, VIII, IX, X. This examination aims to help students to achieve their goals by providing them scholarship and helping them to take the first step in endeavor to become Doctors or Engineers

**EXAMINATION SCHEDULE**

<table>
<thead>
<tr>
<th>Date of Exam</th>
<th>05-01-2020 (Sunday)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exam Centre</td>
<td>Will be notified in the Hall Ticket</td>
</tr>
<tr>
<td>Timing of Exam</td>
<td>10.00 AM – 01.00 PM</td>
</tr>
<tr>
<td>Reporting Time</td>
<td>9.30 AM</td>
</tr>
</tbody>
</table>

**SCHEME OF EXAMINATION**

<table>
<thead>
<tr>
<th>EXAM PATTERN</th>
<th>SUBJECTS</th>
<th>NO. OF QNS.</th>
<th>DURATION</th>
<th>MAX.MARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple choice with 4 options</td>
<td>Physics, Chemistry, Biology, Mathematics</td>
<td>120 Qns Physics-30, Chemistry-30, Biology-30, Maths-30</td>
<td>2 Hrs.</td>
<td>480</td>
</tr>
</tbody>
</table>

**INSTRUCTIONS TO CANDIDATES APPEARING FOR EXAMINATION**

- Candidates without having Identity card / Admit card will not be allowed to enter the exam hall
- Candidates should occupy their seats allotted in the exam venue 30 minutes before the scheduled start of the examination.
- Bring good quality ball point pen (Blue or Black) and writing board if necessary

M.O: Kunnumpuram, Ayurveda College Jn., Trivandrum-1 (0471-2573040, 2473040, 2466040)
Branches: Puthussery Building, Kaloor, Ernakulam (0484-2531040)
Sivajyothi Complex, Polayathodu, Kollam (0474-2743040, 2753040)
Good Shepherd School, Marthandam (9746272773)
E-mail: info@zephyrentrance.in, Visit: www.zephyrentrance.in
## EXAMINATION SYLLABUS

<table>
<thead>
<tr>
<th>CLASS VII</th>
<th>CLASS VIII</th>
<th>CLASS IX</th>
<th>CLASS X</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motion and Time</td>
<td>Force and Friction</td>
<td>Motion</td>
<td>Electricity</td>
</tr>
<tr>
<td>Heat</td>
<td>Pressure</td>
<td>Laws of motion &amp; Friction</td>
<td>Magnetic effect of electric current</td>
</tr>
<tr>
<td>Light</td>
<td>Sound</td>
<td>Gravitation</td>
<td>Light, Heat</td>
</tr>
<tr>
<td>Electrical current and its effects</td>
<td>Light</td>
<td>Work, Energy &amp; Power</td>
<td>Periodic Classification</td>
</tr>
<tr>
<td>Fibre to fabric</td>
<td>Universe</td>
<td>Sound</td>
<td>Periodic Properties</td>
</tr>
<tr>
<td>Acid base and salt</td>
<td>Properties of matter</td>
<td>Electricity</td>
<td>Chemical Equations &amp; Chemical Reactions</td>
</tr>
<tr>
<td>Physical &amp; Chemical changes</td>
<td>Electricity</td>
<td>Light</td>
<td>Acids bases and Salts</td>
</tr>
<tr>
<td>Nutrition in plants</td>
<td>Atomic structure</td>
<td>Magnetism</td>
<td>Metals general characteristics</td>
</tr>
<tr>
<td>Nutrition in Animals</td>
<td>Synthetic fibres of Plastics</td>
<td>Periodic Properties</td>
<td>Types of Reactions</td>
</tr>
<tr>
<td>Weather climates and adaptations</td>
<td>Metals and Non-metals</td>
<td>Periodic Properties</td>
<td>Mole Concept</td>
</tr>
<tr>
<td>Respiration in organisms</td>
<td>Chemical equations, Coal, Petroleum</td>
<td>Gase laws, Atomic Structure</td>
<td>Electrolysis, Gaseous State</td>
</tr>
<tr>
<td>Reproduction in plants</td>
<td>Combustion, Flame and Fuel</td>
<td>Laws of chemical combination</td>
<td>Chemical Equilibrium</td>
</tr>
<tr>
<td>Transportation in animals and plants</td>
<td>Environmental Chemistry</td>
<td>Concentration Terms &amp; Problems</td>
<td>Ionic Equilibrium</td>
</tr>
<tr>
<td>Forest: Our life line</td>
<td>Oxygen, Hydrogen, Water</td>
<td>Elements compounds &amp; Mixtures</td>
<td>Metallurgy</td>
</tr>
<tr>
<td>Integers</td>
<td>Micro organisms</td>
<td>Separation of mixtures, Hydrogen</td>
<td>Human Digestive system</td>
</tr>
<tr>
<td>Fractions and Decimals</td>
<td>Crop production &amp; Management</td>
<td>Colloids &amp; its classification</td>
<td>Life process</td>
</tr>
<tr>
<td>Data Handling</td>
<td>Conservation of Plants &amp; Animals</td>
<td>Properties of colloids</td>
<td>Human respiratory system</td>
</tr>
<tr>
<td>Simple equations</td>
<td>Micro organisms</td>
<td>Fundamental of unit of life</td>
<td>Human circulatory system</td>
</tr>
<tr>
<td>Lines and angles</td>
<td>Cell - Structure and Function</td>
<td>Animal Tissue</td>
<td>Human excretory system</td>
</tr>
<tr>
<td>Triangles</td>
<td>Reproduction in Animals</td>
<td>Diversity of Living Organism</td>
<td>Neural control &amp; coordination in Human</td>
</tr>
<tr>
<td>Algebraic expressions</td>
<td>Pollution</td>
<td>Animalia</td>
<td>Co-ordination in plants</td>
</tr>
<tr>
<td>Exponents and Powers</td>
<td>Absorption &amp; Conduction</td>
<td>Tissues</td>
<td>How do organisms reproduce</td>
</tr>
<tr>
<td></td>
<td>Rational Numbers</td>
<td>Diversity of Living organism</td>
<td>Hormonal control in Human</td>
</tr>
<tr>
<td></td>
<td>Linear Equations in one variable</td>
<td>Immune system</td>
<td>Human Reproduction, Genetics, Evolution</td>
</tr>
<tr>
<td></td>
<td>Quadrilaterals</td>
<td>Polynomials</td>
<td>Real Numbers, Polynomials</td>
</tr>
<tr>
<td></td>
<td>Practical Geometry</td>
<td>Co-ordinate Geometry</td>
<td>Pair of linear equations in two variables</td>
</tr>
<tr>
<td></td>
<td>Squares and Square roots</td>
<td>Linear equations in two variables</td>
<td>Quadratic Equation</td>
</tr>
<tr>
<td></td>
<td>Cubes &amp; Cube roots,</td>
<td>Lines and Angles</td>
<td>Arithmetic Progression</td>
</tr>
<tr>
<td></td>
<td>Comparing Quantities</td>
<td>Triangles</td>
<td>Triangles, Co-ordinate Geometry</td>
</tr>
<tr>
<td></td>
<td>Algebraic Expressions &amp; Identities</td>
<td>Quadrilaterals</td>
<td>Trigonometry, Circles</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Areas of Parallelograms &amp; Triangles</td>
<td>Areas related to circles</td>
</tr>
</tbody>
</table>
Important Instructions:

1. The Answer Sheet is inside this Test booklet. When you are directed to open the Test Booklet, take out the Answer sheet and fill in the particulars on side-1 and side-2 carefully with blue/black point pen only.
2. The test is of 2 hours duration and Test Booklet contains 120 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 480.
3. Use Blue / Black Ball Point Pen only for writing particulars on this page / marking responses.
4. Rough work is to be done on the space provided for this purpose in the Test Booklet only.
5. 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.
6. The Code for this Booklet is A. Make sure that the CODE bubbled on Side-2 of the Answer sheet is the same as that on the Question Booklet. In case of discrepancy, the candidate should immediately report the matter to the Invigilator for replacement Answer sheet.
7. The candidate should ensure that the Answer sheet is not folded. Do not make any stray marks on the Answer sheet. Do not write your Roll No. anywhere else except in the specified space in the Test Booklet / Answer sheet.
8. Use of white fluid for correction is NOT permissible on the Answer sheet.
9. Each candidate must show on demand his / her Admit Card to the Invigilator.
10. No candidate, without special permission of the Superintendent or Invigilator, would leave his / her seat.
11. The candidates should not leave the Examination hall without handing over their Answer sheet to the Invigilator on duty and sign the Attendance sheet twice. Cases where a candidate has not signed the Attendance sheet second time will be deemed not to have handed over Answer sheet and dealt with as an unfair means case.
12. Use of Electronic / Manual Calculator is prohibited.
13. The candidates are governed by all Rules and Regulations of the Institution with regard to their conduct in the Examination Hall. All cases of unfair means will be dealt with as per Rules and Regulations of the Institution.
14. No part of the test Booklet and Answer sheet shall be detached under any circumstances.
15. The candidates will write the correct Test Booklet code as given in the Test Booklet / Answer sheet in the Attendance sheet.

Name of the Candidate (in Capitals) : ________________________________

Roll Number : in figures ____________________________

: in words ________________________________

Centre of Examination (in Capitals) : ________________________________

Candidate’s Signature: ____________________________ Invigilator’s Signature: ____________________________
1. In 15 minutes, a car whose speed is 36 km/h, travels a distance of -
   (1) 9 km        (2) 0.9 km
   (3) 540 km      (4) 28 km

2. A body moving along a straight line at 20 m/s undergoes an acceleration of 4 m/s^2. After 2 s its speed will be
   (1) 8 m/s        (2) 10 m/s
   (3) 16 m/s       (4) 28 m/s

3. The following time-velocity graph (fig.) represents
   (1) zero acceleration
   (2) constant acceleration
   (3) increasing acceleration
   (4) decreasing acceleration

4. Distance travelled by a freely falling body is proportional to
   (1) mass of the body
   (2) square of the acceleration due to gravity
   (3) square of the time of fall
   (4) time of fall

5. The energy conversion takes place inside a battery is
   (1) Electrical → Heat
   (2) Chemical → Electrical
   (3) Mechanical → Electrical
   (4) Sound → Electrical

6. The pressure of a region is 24 N/m^2, area of contact is 4m^2. What is force at that region?
   (1) 6 N        (2) 12 N
   (3) 48 N       (4) 96 N

7. Unit of “G” is
   (1) Nm^2Kg^{-2}    (2) Nm^{-2}Kg^{-2}
   (3) Nm^{-2}Kg^2    (4) Nm Kg

8. Newton’s second law gives a measure of
   (1) Acceleration
   (2) Force
   (3) Momentum
   (4) Angular momentum

9. The energy verses height of a freely falling body is given below, Choose the correct one.
   (1) a        (2) b
   (3) c       (4) d
10. The percentage change in momentum is 50%. The percentage change in kinetic energy is
   (1) 100%
   (2) 300%
   (3) 125%
   (4) 25%

11. A car and a lorry are moving with same kinetic energy and same retarding force is applied on it to stop, then
   (1) Car will come to rest first
   (2) Lorry will come to rest first
   (3) Both will come to rest at the same time
   (4) Cannot be predicted

12. Two masses m and 25m are moving with equal kinetic energies. The ratio of the magnitudes of their momenta
   (1) 1 : 1
   (2) 1 : 2
   (3) 5 : 1
   (4) 1 : 5

13. A man while running at a constant acceleration of 3.5 ms\(^2\), develops a force of 280 N. The mass of man is
   (1) 80 kg
   (2) 85 kg
   (3) 75 kg
   (4) 60 kg

14. Momentum has same unit as
   (1) impulse
   (2) torque
   (3) moment of force
   (4) couple

15. In general, which of the following relation is correct?
   (1) rolling friction < kinetic friction > limiting friction
   (2) rolling friction > kinetic friction < limiting friction
   (3) rolling friction > kinetic friction > limiting friction
   (4) limiting friction > kinetic friction > rolling friction

16. A car of mass one metric ton accelerates from rest at the rate of 2 m/s\(^2\) from t = 0 sec to t = 10 sec. There after it travels with a uniform velocity. The measure of net retarding force acting on the car after 10 sec is
   (1) 4000 N
   (2) 2000 N
   (3) 0 N
   (4) 1000 N

17. Pick the fundamental law of motion
   (1) Newton’s first law of motion
   (2) Newton’s second law of motion
   (3) Newton’s third law of motion
   (4) All laws of motion

18. Which of the following statement is correct? The force acting on an object is equivalent to
   (1) Its change in momentum
   (2) The impulse it receives per second
   (3) The energy it gains per second
   (4) Its acceleration per meter

19. 1 bar is equal to
   (1) \(10^5\) Pa
   (2) \(10^3\) Pa
   (3) \(10^{-3}\) Pa
   (4) \(10^{-5}\) Pa
### 20. Value of G on surface of earth is \(6.673 \times 10^{-11}\) \(\text{Nm}^2\text{kg}^{-2}\), then value of G on surface of Jupiter is

1. \(12 \times 6.673 \times 10^{-11}\) \(\text{Nm}^2\text{kg}^{-2}\)
2. \(\frac{6.673}{12} \times 10^{-11}\) \(\text{Nm}^2\text{kg}^{-2}\)
3. \(6.673 \times 10^{-11}\) \(\text{Nm}^2\text{kg}^{-2}\)
4. \(\frac{6.673}{6} \times 10^{-11}\) \(\text{Nm}^2\text{kg}^{-2}\)

### 21. The force of gravitation between two bodies of masses 2 kg & 5 kg placed 1 m apart is

1. 1G newton
2. 10 G Newton
3. 100 G Newton
4. 15 G newton

### 22. Kepler’s law of periods, state that

1. \(T^2 \propto r^3\)
2. \(T^3 \propto r^2\)
3. \(T^2 \propto \frac{1}{r^2}\)
4. \(T^2 \propto \frac{1}{r}\)

### 23. Gravitational force working between two bodies is F. Now if mass of first body is doubled & that of other body is halved & distance between them is made \(\left(\frac{1}{4}\right)^n\) then new force acting between them is

1. 4 F
2. \(\frac{F}{4}\)
3. \(\frac{F}{16}\)
4. 16 F

### 24. Where will a body weigh minimum?

1. At a height of 100 m above the earth’s surface
2. At the earth’s surface
3. At a depth of 100 m below the earth’s surface
4. At the centre of the earth

### 25. When the speed of a article is increased 3 times, its kinetic energy

1. increases 3 times
2. remains s. me
3. increases 9 times
4. decreases to 1/3

### 26. Which of the following is not a measure of energy?

1. Js
2. Ws
3. kWh
4. erg

### 27. The weight of a body of mass 5kg is

1. 69N
2. 79N
3. 49N
4. 39N

### 28. The kinetic energy of a body depends

1. on its mass only
2. on its speed only
3. on its mass as well as the speed
4. neither on its mass nor the speed

### 29. Two bodies of unequal masses are dropped from a cliff. At any instant, they have equal

1. momentum
2. acceleration
3. potential energy
4. kinetic energy
30. 1 kWh equals
   (1) $36 \times 10^2$ Joules
   (2) $36 \times 10^4$ Joules
   (3) $3.6 \times 10^6$ Joules
   (4) None of these

31. Which of the following describes an isotope with a mass number of 99 that contains 56 neutrons in its nucleus?
   (1) $\text{Ba}^{99}_{56}$
   (2) $\text{Ba}^{98}_{56}$
   (3) $\text{TC}^{99}_{43}$
   (4) $\text{TC}^{97}_{43}$

32. Number of elements in the 1\(^{st}\) period?
   (1) 8
   (2) 2
   (3) 16
   (4) 32

33. Al [Z = 13] comes in which period?
   (1) 2
   (2) 3
   (3) 4
   (4) 5

34. Which is wrong?
   (1) $1s^2 \ 2s^2$
   (2) $1s^2 \ 2s^2 \ 2p^6 \ 2d^1$
   (3) $1s^2 \ 2s^2 \ 2p^6$
   (4) $1s^2 \ 2s^1$

35. Which one have more number of moles?
   (1) 2g H\(_2\)
   (2) 16 g O\(_2\)
   (3) 36g H\(_2\)O
   (4) 14g N\(_2\)

36. By Boyles Law
   (1) $PV = nRT$
   (2) $P_1 V_1 = P_2 V_2$
   (3) $\frac{V_1}{T_1} = \frac{V_2}{T_2}$
   (4) None of these

37. An element having atomic number 20 comes in which group?
   (1) I\(^{st}\)
   (2) 13\(^{th}\)
   (3) 2\(^{nd}\)
   (4) 14\(^{th}\)

38. Which of the following do not have fixed melting point?
   (1) Fe
   (2) air
   (3) Sugar
   (4) glucose

39. The fine particle of an insoluble substance uniformly dispersed throughout a gas or liquid is called
   (1) colloidal solution
   (2) suspension
   (3) precipitate
   (4) Impurity

40. Name the alloy used for making magnets?
   (1) Steel
   (2) Invar
   (3) Bronze
   (4) Alnico

41. Which metal is present in chlorophyll?
   (1) Calcium
   (2) Iron
   (3) Magnesium
   (4) Sodium

42. The percentage of which element is higher in glucose [C\(_6\)H\(_{12}\)O\(_6\)]
   (1) Carbon
   (2) Hydrogen
   (3) Oxygen
   (4) None of these

43. Brass contains
   (1) Gold and copper
(2) Copper and zinc  
(3) Zinc and silver  
(4) Copper and silver

44. Aluminium sulphate is ————–?
   (1) AlSO₄
   (2) Al₂SO₄
   (3) Al₂(SO₄)₃
   (4) Al₂(SO₄)₄

45. Lemon contains
   (1) Citric Acid
   (2) Lactic acid
   (3) Oxalic acid
   (4) Tartaric acid

46. Match the following
   A Caustic soda 1 NaOH
   B Washing soda 2 Na₂CO₃
   C Baking soda 3 NaHCO₃
   D Soda ash 4 CaH₂

(1) A-3, B-1, C-4, d-2  
(2) A-1, B-3, C-4, d-2  
(3) A-1, B-2, C-4, d-3  
(4) A-1, B-2, C-3, d-4

47. Smoke is an example of
   (1) gas in liquid sol  
   (2) gas in solid sol  
   (3) solid in gas sol  
   (4) solid in solid sol

48. Which is gas-liquid colloid?
   (1) Gel  
   (2) emulsion

   (3) Milk  
   (4) Foam

49. Which element is most abundant in earth crest?
   (1) Oxygen
   (2) Silicon
   (3) Hydrogen
   (4) Nitrogen

50. By Charle`s law
   (1) V & P  
   (2) V & T  
   (3) V & n  
   (4) V & \( \frac{1}{P} \)

51. A graph plotted at constant pressure is ————–?
   (1) Isochors
   (2) Isobar
   (3) Isotope
   (4) None of these

52. If P, V, M, T and R are pressure, volume, mass temperature and gas constants then what is density?
   (1) \( \frac{RT}{PM} \)  
   (2) \( \frac{PM}{RT} \)  
   (3) \( \frac{PV_i}{T_i} \)  
   (4) \( \frac{m}{VT} \)

53. A mixture of carbonmonoxide and Hydrogen is
   (1) Water gas
   (2) Producer gas
   (3) Tear gas
   (4) None of these

54. 1 mol is ————–?
   (1) \( 6.022 \times 10^{22} \)
(2) $6.02 \times 10^{23}$
(3) 22.4L
(4) Both (2) and (3)

55. Which one is an example of mixture?
(1) water  (2) glucose
(3) air   (4) Sugar

56. Name the compound which exist in three phase?
(1) Glucose
(2) Water
(3) Both (1) and (2)
(4) None of these

57. Which will have lowest $p^H$ value?
(1) $H_2O$
(2) NaOH
(3) KOH
(4) HCl

58. Electrolysis of acidified water gives-?
(1) $H_2$  (2) $O_2$
(3) both a and b  (4) $N_2$

59. Which element is kept under Kerosine?
(1) Fe   (2) P
(3) Na   (4) Li

60. Which is third most abundant gas in air?
(1) $H_2$  (2) Ar
(3) $O_2$  (4) $CO_2$

61. Photosynthetic pigments are located in
(1) Membrane of thylakoid

(2) Stromata
(3) Lumen of thylakoid
(4) Cristae

62. The power houses of plant cells are
(1) Mitochondria
(2) Chloroplast
(3) Nucleus
(4) Ribosomes

63. Cryptogamae includes:
(1) Angiosperm & Gymnosperm
(2) Thallophyta, Bryophyta & Pteridophyta
(3) Thallophyta & Phanerogamae
(4) Bryophyta & Tracheophyta

64. Members of fungi are
(1) Unicellular autotrophs
(2) Multicellular autotrophs
(3) Multicellular Heterotrophs
(4) Unicellular heterotrophs

65. Plasmolysis in a plant cell is defined as
(1) Break down of plasma membrane in hypotonic medium
(2) Shrinkage of cytoplasm in hypertonic medium
(3) Shrinkage of nucleoplasm
(4) Shrinkage of cytoplasm in hypotonic medium

66. In which stage of cell cycle DNA replication takes place
(1) Interphase
(2) Anaphase
<table>
<thead>
<tr>
<th>Question Number</th>
<th>Question Text</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>67.</td>
<td>Which of the following is called an organelle within an organelle</td>
<td>(1) Plastid (2) Lysosome (3) Ribosome (4) Microsome</td>
</tr>
<tr>
<td>68.</td>
<td>Multicellular, eukaryotic, Photosynthetic forms present in</td>
<td>(1) Monera (2) Protista (3) Plantae (4) Fungi</td>
</tr>
<tr>
<td>69.</td>
<td>M-phase in cell cycle consists of</td>
<td>(1) G1, S and G2 phase (2) Prophase, Metaphase, Anaphase &amp; Telophase</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(3) Interphase, Prophase, Metaphase, Anaphase</td>
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<tr>
<td></td>
<td></td>
<td>(4) Only prophase</td>
</tr>
<tr>
<td>70.</td>
<td>Which of the following are the components of phloem tissue</td>
<td>(1) Tracheid &amp; Companion cell (2) Vessel &amp; Sieve tube</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(3) Companion cell &amp; Sieve tube (4) Vessel &amp; Companion cell</td>
</tr>
<tr>
<td>71.</td>
<td>Cork cambium is an example for</td>
<td>(1) Lateral meristem (2) Primary meristem (3) Apical meristem</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(4) Intercalary meristem</td>
</tr>
<tr>
<td>72.</td>
<td>A living mechanical tissue with localized thickening of cellulose and pectin</td>
<td>(1) Parenchyma</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2) Sclerenchyma (3) Fibers (4) Collechyma</td>
</tr>
<tr>
<td>73.</td>
<td>Methanogens belong to</td>
<td>(1) Eubacteria (2) Cyanobacteria (3) Archaebacteria (4) Mycoplasma</td>
</tr>
<tr>
<td>74.</td>
<td>Which of the following is not true</td>
<td>(1) Mycoplasma are monerans without cell wall</td>
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<tr>
<td></td>
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<td>(2) In gymnosperms seeds are enclosed with in the fruit</td>
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<td></td>
<td>(3) Angiosperm seed has embryo and cotyledons</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(4) Pteridophytes, Gymnosperms and Angiosperms are vascular plants</td>
</tr>
<tr>
<td>75.</td>
<td>Indigenous breed of cattle among the following is</td>
<td>(1) Jersey (2) Brown swiss (3) Holstein (4) Red Sindhi</td>
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<td>76.</td>
<td>What is true about basement membrane?</td>
<td>(1) It is vascular (2) It is cellular (3) It is thick</td>
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<td>(4) It separate epithelial tissue from other tissues</td>
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<td>77.</td>
<td>Stratified squamous non- keratinized epithelium is found in</td>
<td>(1) Skin (2) Buccal cavity</td>
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</table>
78. What is not true about ligament
(1) Very little matrix
(2) Very elastic
(3) Connect muscle to bone
(4) Is a connective tissue

79. Nail, hooves, horns etc are made of
(1) Albumin (2) Globulin
(3) Keratin (4) Fibrinogen

80. Cardiac muscles are
(1) Smooth, spindle, voluntary
(2) Striated, spindle, involuntary
(3) Striated, cross connected, involuntary
(4) Smooth, cross connected, involuntary

81. The cell which secrete myelin sheath around axon is
(1) Sarcomere
(2) Sarcosome
(3) Nissl granules
(4) Schwann cell

82. The common character that shared by platyhelminthes, aschelminthes, annelida is
(1) Coelom
(2) Symmetry
(3) Fertilization
(4) Circulation

83. The character not seen in chordata
(1) Dorsal notochord
(2) Ventral nerve chord
(3) Pharyngeal gill slits

84. Incomplete double circulation is found in
(1) Frog
(2) Crocodile
(3) Monkey
(4) Ostrich

85. Mammals share which of the following character with birds
(1) Nipple
(2) Diaphragm
(3) Pinna
(4) Homeothermy

86. Which fish has wing like fins
(1) Labeo
(2) Hippocampus
(3) Anabas
(4) Exocoetus

87. World AIDS day and TB day are celebrated on .......... and ..........
(1) 1st December, 1st June
(2) 1st December, 1st July
(3) 1st December, 24th May
(4) 1st December, 24th March

88. DPT vaccine do not give protection to
(1) Diphtheria
(2) Pneumonia
(3) Tetanus
(4) Whooping cough

89. Who received Nobel prize for medicine in 2005 for discovering pathogen causing peptic ulcer
(1) Darwin and Lamarck
(2) Darwin and Warren
90. Find the mismatch
(1) Staphylococcus – acne
(2) Plasmodium – malaria
(3) Trypanosoma–Kala azar
(4) Wuchereria –elephantiasis

91. Two straight lines \( AB \) and \( CD \) cut each other at ‘O’. If \( \angle BOD = 63^\circ \) then \( \angle BOC = \)
(1) 63°
(2) 117°
(3) 17°
(4) 153°

92. \( AB \) and \( CD \) are two parallel lines. \( PQ \) cuts \( AB \) and \( CD \) at \( E \) and \( F \) respectively. ‘\( EL \)’ is the bisector of \( \angle FEB \). If \( \angle LEB = 35^\circ \) then \( \angle CFQ \) will be.
(1) 55°
(2) 70°
(3) 110°
(4) 130°

93. The greatest 4 digit perfect square.
(1) 9801
(2) 9999
(3) 1000
(4) 9763

94. The value of \( \frac{(0.03)^2 - (0.01)^2}{0.3 - 0.01} \)
(1) 0.02
(2) 0.004
(3) 0.4
(4) 0.04

95. If \( x + \frac{1}{x} = 2 \) then \( \sqrt{x} + \frac{1}{\sqrt{x}} \) will be.
(1) \( \sqrt{2} \)
(2) 2

96. The smallest number which when increased by 17 is exactly divisible by both 520 and 468 is
(1) 4697
(2) 4656
(3) 4663
(4) 4680

97. What is the square root of \( 9 + 2\sqrt{14} \)
(1) \( 1 + 2\sqrt{2} \)
(2) \( \sqrt{3} + \sqrt{6} \)
(3) \( \sqrt{2} + \sqrt{7} \)
(4) \( \sqrt{2} + \sqrt{5} \)

98. If \( a + b + c = 12 \) and \( a^2 + b^2 + c^2 = 50 \) find the value of \( ab + bc + ca \).
(1) 44
(2) 45
(3) 46
(4) 47

99. If \( x = (3 + \sqrt{8}) \), then \( x^2 + \frac{1}{x^2} \)
(1) 38
(2) 36
(3) 34
(4) 30

100. The H.C.F of two expression ‘p’ and ‘q’ is 1 then their L.C.M is
(1) \( p + q \)
(2) \( p - q \)
(3) \( \frac{1}{pq} \)
(4) \( pq \)

101. If \( x^2 + x + 1 = 0 \), then what is the value of \( \left( x^3 + \frac{1}{x^3} \right) \)
(1) 8
(2) -1
(3) 0
(4) 1

102. \( \alpha, \beta \) be the zeros of the polynomial \( 2x^2 + 5x + k \) such that \( \alpha^2 + \beta^2 + \alpha\beta = \frac{21}{4} \), then \( k = \)
103. The value of \( k \) which the system of equations \( x + 2y - 3 = 0 \) and \( 5x + ky = 10 \) has infinite number of solutions:
   (1) 1   (2) 3   (3) 6   (4) 1

104. Sum of two numbers is 35 and their difference is 13 the number are:
   (1) 23, 12   (2) 24, 11   (3) 23, 11   (4) 22, 9

105. The \( \frac{p}{q} \) form of 23.426 is
   (1) \( \frac{781}{999} \)   (2) \( \frac{23192}{990} \)   (3) \( \frac{386}{165} \)   (4) \( \frac{3866}{165} \)

106. If (P, 4) point lies on the line \( 3x + y = 10 \), value of \( p \) is
   (1) 5   (2) 1   (3) 3   (4) 2

107. The distance of the point (6, 8) from y-axis
   (1) 8 units   (2) 6 units   (3) 10 units   (4) 4 units

108. The point on x-axis equidistant from (5, 4) and (–2, 3) is
   (1) (3, 0)   (2) (2, 0)   (3) (4, 0)   (4) (1, 0)

109. If (x, 2), (–3, –4) and (7, –5) are collinear then \( x = \)
   (1) 60   (2) 63   (3) –63   (4) –60

110. The area of the square whose vertices are (–3, 4), (–3, 1), (0, 1) and (0, 4) is
   (1) \( \sqrt{18} \) sq. units   (2) 18 sq. units   (3) 15 sq. units   (4) \( \sqrt{15} \) sq. units

111. In fig, if lines \( l \) and \( m \) are parallel, then \( x = \)
   (1) 20°   (2) 45°   (3) 65°   (4) 85°

112. In fig, if \( AB \parallel CD \), then \( x = \)
   (1) 132°   (2) 148°   (3) \( x° \)   (4) \( 180° \)
113. In fig, if lines \( l \) and \( m \) are parallel lines, then \( x = \)

- (1) 100°
- (2) 105°
- (3) 110°
- (4) 115°

114. In fig, if \( l \parallel m \), then \( x = \)

- (1) 70°
- (2) 100°
- (3) 40°
- (4) 30°

115. In fig, if lines \( l \) and \( m \) are parallel, then the value of \( x \) is

- (1) 105°
- (2) 65°
- (3) 40°
- (4) 25°

116. In a \( \triangle ABC \), \( \angle A = 50° \) and \( BC \) is produced to a point \( D \). If the bisectors of \( \angle ABC \) and \( \angle ACD \) meet at \( E \), then \( \angle E = \)

- (1) 35°
- (2) 55°
- (3) 65°
- (4) 75°

117. In fig, if \( EC \parallel AB \), \( \angle ECD = 70° \) and \( \angle BDO = 20° \), then \( \angle OBD \) is

- (1) 20°
- (2) 50°
- (3) 60°
- (4) 70°

118. If the measures of angles of a triangle are in the ratio of 3 : 4 : 5, what is the measure of the smallest angle of the triangle?

- (1) 25°
- (2) 30°
- (3) 45°
- (4) 60°

119. In fig, if \( AB \perp BC \), then \( x = \)
120. In fig, what is \( z \) in terms of \( x \) and \( y \)?

(1) \( x + y + 180 \)
(2) \( x + y - 180 \)
(3) \( 180^\circ - (x + y) \)
(4) \( x + y + 360^\circ \)
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