Meritorious Tutorials
#33, Kesar Garden Sec - 20, Kharghar Navi Mumbai

11th STD MSAT PCB
CLASS 11 - ADMISSION TEST

Time Allowed: 1 hour **Maximum Marks :** 60

General Instructions:

- Overall, 60 questions are to be completed in 60 minutes.
- All questions are compulsory and there is no negative marking.
- Biology - 30 Questions
  Physics - 15 Questions
  Chemistry - 15 Questions
- These questions are based on the CBSE class - 10 syllabus.

Physics

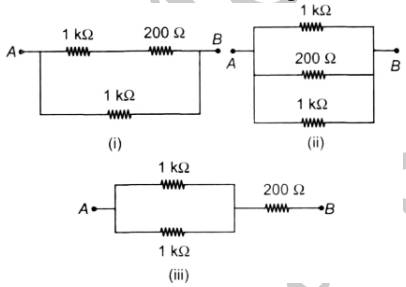
1) To obtain a magnification of +2 with a concave mirror of radius of curvature 60 cm the object distance must be **[1]**
   a) - 90 cm b) - 45 cm
   c) - 30 cm d) - 15 cm

2) Refraction cannot cause bending as light moves from one surface to another if the incident and refraction angles i and r are related as: **[1]**
   a) I = r = 90° b) I = 0° = r = 90°
   c) I≠ r = 0° d) I = r = 0°

3) If the current through a flood lamp is 5A, what charge passes in 10 seconds? **[1]**
   a) 50 C b) 2 C
   c) 5 C d) 0.5 C

4) A cylindrical conductor of length l and uniform area of cross - section A has resistance R. Another conductor of length 2.5 l and resistance 0.5 R of the same material has area of cross - section **[1]**
   a) 2.5 A b) 5 A
   c) $\frac{1}{5}$ A d) 0.5 A

5) In which of the following network of resistors the equivalent resistance between points A and B is highest?



[1]

   a) All have equal equivalent resistance.
   b) Network (iii)
   c) Network (i)
   d) Network (ii)

6) An electric room heater draws a current of 2.4A from the 120V supply line. What current will this room heater draw when connected to 240V supply line? **[1]**
   a) 5.8 amp b) 4.9 amp
   c) 3.9 amp d) 4.8 amp

7) Which of the following expressions does not represent the electric power in the circuit? **[1]**
   a) VI b) $\frac{V^2}{R}$
   c) I^2R d) $\frac{I^2}{R}$

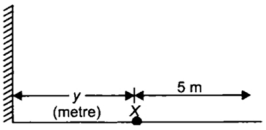
8) What will happen when a magnet is taken towards a circular coil? **[1]**
   a) Induced current will start flowing
   b) No effect on the circular coil.
   c) No effect of magnetic field.
   d) No current will flow in the circuit.

9) The image of an object formed by a plane mirror is: **[1]**
   a) Virtual b) Upside - down
   c) Real d) Diminished

10) The amount of light entering the human eye is controlled by: **[1]**
   a) Pupil b) Cornea
   c) Iris d) Ciliary muscles

11) The bluish colour of water in deep sea is due to **[1]**
   a) Absorption of light by the sea
   b) Scattering of light
   c) Reflection of sky in water
   d) The presence of algae and other plants found in water

12) A man is standing at a position X in front of a plane mirror, a distance of y metre from the mirror as shown in figure. When the man moves 5 m away from the mirror, the new distance between the man and his image becomes 20 metre. What is the value of y?



[1]
   a) 5 m b) 40 m
   c) 10 m d) 20 m

13) In a house, two 60W electric bulbs are lighted for 4 hours and three 100W bulbs for 5 hours every day. The electric energy is consumed in 30 days: **[1]**
   a) 59.4 kWh b) 79.4 kWh
   c) 100 kWh d) 45 kWh

14) What is the spectrum? **[1]**
   a) The band of 8 colours.
   b) The band of 5 colours.
   c) The band of 6 colours.
   d) The band of 7 colours.

15) When more than one resistors are in series, the quantity that remains same in them is **[1]**
a) Potential difference b) Ammeter
c) Resistance d) Current

Chemistry

16) Slaked lime is the commercial name of: **[1]**
a) Calcium carbonate b) Calcium hydroxide
c) Calcium oxide d) Calcium bicarbonate

17) Which of the following reactions is an endothermic reaction? **[1]**

a) Burning of coal
b) Decomposition of calcium carbonate to form quick lime and carbon dioxide.
c) Decomposition of vegetable matter into compost
d) Process of respiration

18) Which one of the following processes involve chemical reactions? **[1]**

a) Keeping petrol in a china dish in the open.
b) Storing of oxygen gas under pressure in a gas cylinder.
c) Liquefaction of air.
d) Heating copper wire in presence of air at high temperature

19) Silver articles on exposure become black. It is an example of **[1]**
a) Oxidation reaction b) Displacemet reaction
c) Reduction reaction d) Redox reaction

20) 2 g of yellow sulphur powder is burnt in a china dish and the fumes are collected in a test tube. Water is added in the test tube and the solution is tested separately with blue and red litmus paper. The correct option is: **[1]**

a) Blue litmus remains blue and red litmus remains red.
b) Blue litmus turns red and red litmus remains red.
c) Blue litmus turns red and red litmus turns blue.
d) Blue litmus remains blue and red litmus turns blue.

21) If a few drops of a concentrated acid accidentally spills over the hand of a student, what should be done? **[1]**

a) After washing with plenty of water apply solution of sodium hydroxide on the hand
b) Neutralise the acid with a strong alkali
c) Wash the hand with saline solution
d) Wash the hand immediately with plenty of water and apply a paste of sodium hydrogencarbonate

22) There are four solutions A, B, C, and D with pH values as follows:

Solution	A	B	C	D
pH	2.0	7.0	8.0	12.0

Which solution(s) would liberate hydrogen gas with zinc? **[1]**
a) D only b) A and D
c) A only d) B and C

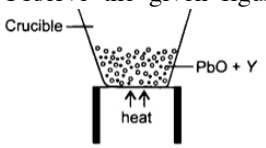
23) Bleaching powder is produced by the action of chlorine on **[1]**
a) Calcium chloride b) Calcium hydroxide
c) Dry slaked lime d) Moist slaked lime

24) A metal and a non - metal that exists in liquid state at the room temperature are respectively: **[1]**
a) Mercury and Bromine b) Bromine and Mercury
c) Mercury and Iodine d) Iodine and Mercury

25) Non - metals do not replace hydrogen from acids because: **[1]**

a) They are more reactive than hydrogen.
b) They are not reactive than hydrogen.
c) They are less reactive than hydrogen.
d) Non - metal being acceptors of electrons.

26) Observe the given figure carefully.

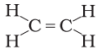
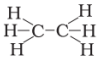


The residue left behind in the crucible, substance Y and the substance which can replace Y in the above process are respectively. **[1]**

a) Brown crystals of Pb_2O_3, C and CO
b) Shiny globules of Pb, C and Mg
c) Black mass of Pb_2O_3, CO and Cu
d) White powder of Pb, Cu and K

27) IUPAC names of a few esters are given below:
i. Ethyl propanoate
ii. Propyl methanoate
iii. Methyl butanoate
iv. Ethyl butanoate
The ester(s) which contain(s) ten hydrogen atoms per molecule is/are **[1]**
a) (i) and (ii) only b) (iv) only
c) (i) and (iii) only d) I only

28) Structural formula of ethyne is **[1]**

a) H - C≡ C - H
b) 
c) H_3 - C ≡ C - H
d) 

29) A hydrocarbon which can add two molecules of Br_2 is **[1]**

a) H_2C = CH - CH = CH_2
b) H_3C - CH = CH - CH_3
c) HC ≡ CH
d) Both H_2C = CH - CH = CH_2 and HC ≡ CH

30) Which of the following represents a saponification reaction? **[1]**

a) $CH_3COOH + C_2H_5OH \xrightarrow{H_2SO_4} CH_3COO_2H_5$
b) $CH_3COOC_2H_5 + NaOH \rightarrow CH_3COONa + C_2H_5OH$
c) $CH_3COONa + NaOH \xrightarrow{CaO} CH_4 + Na_2CO_3$
d) $2CH_3COOH + 2Na \rightarrow 2CH_3COONa + H_2$

Biology

31) Most of the digestion and absorption of the food takes place in the **[1]**
a) Stomach b) Small intestine
c) Large intestine d) Liver

32) Choose the event that does not occur in photosynthesis. **[1]**

a) Oxidation of carbon to carbon dioxide
b) Absorption of light energy by chlorophyll
c) Conversion of light energy to chemical energy
d) Reduction of carbon dioxide to carbohydrates

33) In human beings, when the process of digestion is completed, the (i) proteins, (ii) carbohydrates, and (iii) fats are respectively finally converted into: **[1]**

a) Sugars, (ii) amino acids, (iii) fatty acids and glycerol
b) Amino acids, (ii) glucose and (iii) fatty acids
c) Amino acids, (ii) glucose, (iii) fatty acids and glycerol
d) Glucose, (ii) fatty acids and glycerol, (iii) amino acids

34) Which is the first enzyme to mix with food in the digestive tract? **[1]**

a) Cellulase b) Pepsin
c) Trypsin d) Amylase

35) Sita is supposed to face an interview. During the first five minutes before the interview she experiences sweating, increased rate of heartbeat, increased respiratory rate, etc. Which of the following hormones has increased in her blood and is responsible for her restlessness **[1]**

a) Estrogen b) GnRH
c) Insulin d) Adrenaline

36) Ridhima put lime water in the beaker. She finds lime water turns milky. It means **[1]**

a) Presence of lime with germinating seeds
b) Absence of KOH
c) Absence of NaOH
d) Presence of KOH in conical flask in the test tube

37) A student puts germinating seeds into the conical flask and miss to put KOH solution in hanging test tube what he observes **[1]**

a) Water level will not rise in bent tube
b) Water level will decrease in bent tube
c) CO_2 will not be absorbed
d) Water level will not rise in bent tube and CO_2 will not be absorbed

38) Instead of water, we use glycerine as a mounting medium: **[1]**

a) To enlarge the material
b) To clean the material
c) To colour the material
d) To prevent the material from drying

39) The kidneys in human beings are a part of the system for **[1]**

a) Respiration b) Excretion
c) Nutrition d) Transportation

40) The part in which gustatory receptors are present in our body is: **[1]**

a) Skin b) Tongue
c) Inner lining of nose d) Inner ear

41) Which neuron carries impulses from receptor to brain? **[1]**

a) Both Sensory neuron and Motor neuron
b) Motor neuron
c) Neither Sensory neuron and Motor neuron
d) Sensory neuron

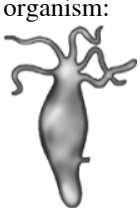
42) Which part of the brain is concerned with muscular co-ordination in the body? **[1]**

a) Temporal lobe b) Cerebellum
c) Pons d) Parietal lobe

43) The substance that triggers the fall of mature leaves and fruits from plants is due to **[1]**

a) Cytokinin b) Gibberellin
c) Abscisic acid d) Auxin

44) Identify the mode of asexual reproduction in the following organism:



[1]

a) Multiple fission b) Fragmentation
c) Budding d) Binary fission

45) Upon observing slides showing stages of reproduction in Amoeba and Yeast, the student reported the following observations. The correct observations are:

i. Cytokinesis was seen in the yeast cell.
ii. A chain of buds was seen due to reproduction in Amoeba.
iii. In Amoeba, the elongated nucleus was dividing to form two daughter nuclei.
iv. Single cells of Amoeba and Yeast were undergoing binary fission and budding respectively.

[1]

a) C and D only b) A, C and D only
c) A and B only d) B only

46) Which of the following is not an example of natural method of vegetative propagation in plants? **[1]**

a) Stem in case of Eichhornia and strawberry.
b) Roots in case of sweet potato and Colocasia.
c) Stem in case of garlic and onion.
d) Leaves in case of Bryophyllum and Begonia.

47) What is the full form of IUCD: **[1]**

a) Inter - Uterine Contraceptive Device
b) Intra - Uterine Contraceptive Diet
c) Intra - Uterine Cover Device
d) Intra - Uterine Contraceptive Device

48) Chlamydia is related to: **[1]**

a) Urethra b) Syphilis
c) Gonorrhea d) HIV

49) A condom is a method of control that falls under the following category: **[1]**

a) Hormonal Method b) Mechanical method
c) Chemical Method d) Surgical Method

50) Offspring formed as a result of sexual reproduction exhibit more variations because **[1]**

a) Genetic material comes from two parents of different species
b) Genetic material comes from many parents
c) Sexual reproduction is a lengthy process
d) Genetic material comes from two parents of the same species

51) In which of the following organisms sex determination occurs under the effect of environmental factors? **[1]**

a) Ailuropoda
b) Chrysemys picta
c) Drosophila melanogaster
d) Pavo cristatus

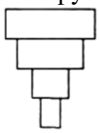
52) Which of the following organism has only one type of sex chromosome called X - chromosome? **[1]**
a) Cricket b) Lizard
c) Bee d) Ant

53) The component of a chromosome that controls heredity is **[1]**
a) Histones b) Proteins
c) RNA d) DNA

54) In an experiment to study independent inheritance of two separate traits : shape and colour of seeds, the ratio of the different combinations in F_2 progeny would be **[1]**
a) 9 : 3 : 3 : 1 b) 9 : 1 : 1 : 3
c) 1 : 2 : 1 d) 1 : 3

55) In peas, a pure tall plant (TT) is crossed with a short plant (tt). The ratio of pure tall plants to short plants in F_2 is **[1]**
a) 3 : 1 b) 1 : 1
c) 1 : 3 d) 2 : 1

56) The pyramid shown here can be the pyramid of _____.



[1]

a) Biomass in a forest
b) Energy in a Grassland
c) Number in a pond
d) Biomass in a pond ecosystem

57) Which of the following is/are terrestrial ecosystem(s)?
i. Forest
ii. Aquarium
iii. Grassland
iv. Desert

[1]
a) A, B and D b) A and D
c) A and B d) A, C and D

58) The table below lists some information about the trophic levels of a food chain.

Trophic level	Number of organisms	Energy in the trophic level (arbitrary units)
P	100	10,000
Q	1	100
R	1000	100,000
S	10	1000

Which of the following food chains is correct? **[1]**

a) P→ 0 → R → S
b) R→ P → S → Q
c) P→ S → Q → R
d) R→ Q → S → P

59) Greenhouse gases: **[1]**

a) Gases used in house for cooking
b) Green in colour
c) Trap solar radiations and decrease temperature
d) Trap solar radiations and increase temperature

60) Excessive exposure of humans to UV rays results in:
i. Damage to immune system
ii. Damage to lungs
iii. Skin cancer
iv. Peptic ulcers

[1]
a) A and C b) B and C
c) A and B d) A and D