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

XII STD: - Medical
ENTRANCE EXAM - NEET-UG

Time Allowed: 1 hour **Maximum Marks :** 216

General Instructions:
All the questions are compulsory.

Section A

1) The relation between the vectors A and - 2A is that, **[4]**
   a) Both have same magnitude
   b) They have opposite directions
   c) Both have different magnitude
   d) Both have same direction

2) The velocity of a particle moving in the x - y plane is given by
$\frac{dx}{dt} = 8\pi \sin 2\pi t$ and $\frac{dy}{dt} = 5\pi \cos 2\pi t$
where, t = 0, x = 8 and y = 0, the path of the particle is **[4]**
   a) A circle b) An ellipse
   c) A parabola d) A straight line

3) The reason why cyclists bank when taking a sharp turn is: **[4]**
   a) To supply the acceleration required to move fast.
   b) Cyclists enjoy turning to one side and so bank.
   c) To decelerate at the turns as turns are dangerous.
   d) To supply the sidewise (centripetal) acceleration required to make the direction change.

4) A man stands on the roof of a 15.0 m tall building and throws a rock with a velocity of magnitude 30.0 m/s at an angle of 33.0° above the horizontal. You can ignore air resistance. Calculate the magnitude of the velocity of the rock just before it strikes the ground. **[4]**
   a) 30.6 m/s b) 29.6 m/s
   c) 32.6 m/s d) 34.6 m/s

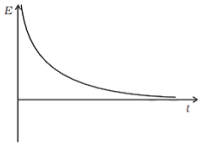
5) For angles of projection of a projectile at angle (45° - θ) and (45°+ θ), the horizontal range described by the projectile is in the ratio of **[4]**
   a) 1 : 2 b) 1 : 1
   c) 2 : 1 d) 2 : 3

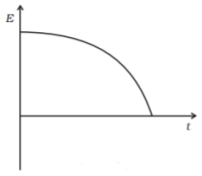
6) A boy stands on a weighing machine inside a lift. When the lift is going down with acceleration g/4, the machine shows a reading 30 kgf. When the lift goes upwards with acceleration $\frac{g}{4}$, the reading would be **[4]**
   a) 37.5 kgf b) 50 kgf
   c) 67.5 kgf d) 18 kgf

7) No force is required for **[4]**
   a) An object moving in circular motion
   b) An object moving with constant acceleration
   c) An object moving in straight line with constant velocity
   d) An object moving in elliptical path

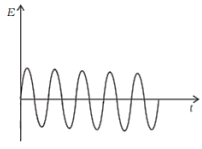
8) A car of mass m is moving on a level circular track of radius R. Ifμ_s represents the static friction between the road and tyres of the car, the maximum speed of the car in circular motion is given by **[4]**
   a) $\sqrt{\mu_s Rg}$
   b) $\sqrt{\frac{\mathrm{Rg}}{\mu_s}}$
   c) $\sqrt{\frac{\mathrm{mRg}}{\mu_s}}$
   d) $\sqrt{\mu_s mRg}$

9) Which of the diagrams shown in Fig. represents variation of total mechanical energy of a pendulum oscillating in air as function of time? **[4]**

a) 

b) 

c) 

d) 

10) A block of mass 50 kg just slides over a horizontal distance of 1 m. If the coefficient of friction between their surfaces is 0.2, the work done against friction is **[4]**
   a) 98 J b) 34 J
   c) 56 J d) 72 J

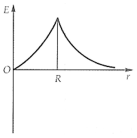
11) A particle moves under a force F = CX from X = 0 to X = X_1. The work done is **[4]**
   a) CX_1^3
   b) $\frac{CX_1^2}{2}$
   c) Zero
   d) CX_1^2

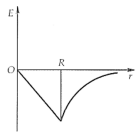
12) A body of mass 1 kg is thrown upwards with a velocity of 20 m/s. It momentarily comes to rest after attaining a height of 18 m. How much energy is lost due to air friction? [Take g = $10\frac{m}{s^2}$]. **[4]**
   a) 30 J b) 20 J
   c) 10 J d) 40 J

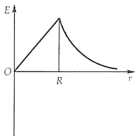
13) A satellite of mass m is orbiting the earth (of radius R) at a height h from its surface. The total energy of the satellite in terms of g_0, the value of acceleration due to gravity at the earth's surface, is: **[4]**
   a) $\frac{mg_0R^2}{2(R\ +\ h)}$

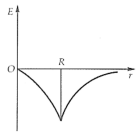
b) $\frac{2mg_0R^2}{R+h}$
c) $-\frac{mg_0R^2}{2(R+h)}$
d) $-\frac{2mg_0R^2}{R+h}$

14) Dependence of intensity of gravitational field (E) of earth with distance (r) from cental of earth is correctly represented by: **[4]**

a) 

b) 

c) 

d) 

15) If R is the radius of a planet, g is the acceleration due to gravity, then the mean density of the planet is given by: **[4]**

a) $\frac{3gG}{4\pi R}$
b) $\frac{4\pi gR}{3G}$
c) $\frac{4\pi GR}{3g}$
d) $\frac{3g}{4\pi GR}$

Section B

16) The molar mass of $C_6\ H_{10}\ O_5$ is **[4]**
a) 172 u
b) 182 u
c) 282 u
d) 162 u

17) Gas is found to have the formula $(CO)_x$. Its vapour density is 70. The value of x will be **[4]**
a) 7
b) 4
c) 6
d) 5

18) Molecular formula represents: **[4]**

a) Ratio of masses of various atoms present in a compound
b) Whole number ratio of different types of atoms present in a molecule of a compound
c) Average fractionall ratio of various atoms present in a compound
d) The exact number of different types of atoms present in a molecule of a compound

19) The molar mass of $C_6H_{10}O_5$ is: **[4]**
a) 172.09 u
b) 182 g
c) 152.00 g/mol
d) 162.14 g/mol

20) A gas absorbs a photon of 355 nm and emits at two wavelengths. If one of the emissions is at 680 nm, the other is at: **[4]**
a) 518 nm
b) 1035 nm
c) 325 nm
d) 743 nm

21) Which color of light has the greatest energy per photon? **[4]**
a) Blue
b) Green
c) Violet
d) Red

22) According to the quantum - theoretical model of an atom, each orbital is designated by three quantum numbers labelled as n, l, and m. These are referred to respectively as: **[4]**

a) Principal quantum number, Azimuthal quantum number or orbital angular momentum, and spin quantum number
b) Azimuthal quantum number or orbital angular momentum, Principal quantum number, and Magnetic orbital quantum number.
c) Principal quantum number, Azimuthal quantum number or orbital angular momentum, and Magnetic orbital quantum number.
d) Azimuthal quantum number or orbital angular momentum, Principal quantum number, and spin quantum number.

23) Electronic configuration of an element is: **[4]**

a) The distribution of electrons into magnetic states of an atom.
b) The distribution of electrons into azimuthal orbitals of an atom only.
c) The distribution of electrons into a spin state of an atom.
d) The distribution of electrons into different atomic orbitals.

24) Ionization enthalpy increases across a period because: **[4]**

a) Shielding is more effective.
b) Outermost electrons are held more and more tightly.
c) Screening is more effective.
d) Outermost electrons are not held tightly.

25) Which of the following groups of elements have highly negative electron gain enthalpy? **[4]**
a) Group - 14
b) Group - 17
c) Both Group - 16 and 17
d) Group - 16

26) Hybridisation in methane (CH_4) ethene (C_2H_4) ethyne (C_2H_2) involves s and p orbitals. Choose the correct hybrid orbitals in the options given below for CH_4,C_2H_4 and C_2H_2 respectively: **[4]**
a) Sp^2, sp, sp^3
b) Sp^3, sp^2, sp
c) Sp, sp^3, sp^2
d) Sp^3, sp, sp^2

27) Which of the following carbocation is most stable? **[4]**

a) $(CH_3)_3\overset{\oplus}{C}$
b) $(CH_3)_3C\overset{\oplus}{C}H_2$
c) $CH_3\overset{\oplus}{C}HCH_2CH_3$
d) $CH_3CH_2\overset{\oplus}{C}H_2$

28) A methyl carbanion has C - atom which has _____. **[4]**

a) Four pairs of electrons
b) Three pairs of electrons
c) Two pairs of electrons
d) Five pairs of electrons

29) Acid catalysed electrophilic addition reaction to carbon - carbon double bond proceeds in two steps. The first step involves the addition of an $H^+$to double bond. Name the type of intermediate formed in the first step of the

following addition reaction:
$H_3C - HC = CH_2 + H^+ \rightarrow ?$ **[4]**

a) 2° Carbanion b) 1° Carbocation
c) 2° Carbocation d) 1° Carbanion

30) Correct IUPAC name for H_3C - $CH(C_2H_5)$ - $CH(C_2H_5)$ - CH_3 is _____. **[4]**

a) 2, 3 - diethylbutane
b) 2 - sec - butylbutane
c) 2 - ethyl - 3 - methylpentane
d) 3, 4 - Dimethylhexane

Section C

31) The plant cells differ from animal cells in: **[4]**

a) Having chloroplast and golgibodies
b) Having cell wall and chloroplast
c) Having chloroplast and mitochondria
d) Having cell membrane and golgibodies

32) All eukaryotic unicellular organisms belong to **[4]**

a) Bacteria b) Protista
c) Fungi d) Monera

33) Which one is not a member of the kingdom Protista? **[4]**

a) Protozoa b) Euglenoids
c) Slime molds d) Phycomycetes

34) A distinction between unicellular and multicellular is not possible in_____. **[4]**

a) Animalia b) Protozoa
c) Plantae d) Algae

35) Which of the following is not among cryptogams? **[4]**

a) Bryophyta b) Algae
c) Pteridophyta d) Gymnosperm

36) Which plant has a fungal association in the form of mycorrhiza? **[4]**

a) Pinus b) Sequoia
c) Cedrus d) Cycas

37) Liverworts are closely related to___. **[4]**

a) Fungi b) Algae
c) Lichen d) Mosses

38) The phylum in which adults exhibit radial symmetry and larva exhibit bilateral symmetry is: **[4]**

a) Phylum Arthropoda b) Phylum Annelida
c) Phylum Aschelminthes d) Phylum Echinodermata

39) Which two teeth are modified into tusk in elephants? **[4]**

a) Two upper molar b) Two lower incisors
c) Two upper incisors d) Two lower molar

40) In which of the organism, internal fertilization is seen? **[4]**

a) Fish b) Liver fluke
c) Earthworm d) Roundworm

41) Ancestors of mammals belongs to: **[4]**

a) Chelonia b) Ornithischia
c) Silusoidea d) Therapsida

42) The parietal placentation is seen in: **[4]**

a) China rose b) Pea
c) Marigold d) Argemone

43) Edible part of Coconut is: **[4]**

a) Mesocarp and Endospem
b) Mesocarp and Embryo
c) Epicarp and Mesocarp
d) Endosperm and Embryo

44) In conifers fibres are likely to be absent in: **[4]**

a) Secondary phloem b) Leaves
c) Primary phloem d) Secondary xylem

45) In which type of placentation, the ovary is unilocular with a single ovule? **[4]**

a) Basal placentation
b) Axile placentation
c) Marginal placentation
d) Free central placentation

46) The chromatin contains some basic proteins are called as _____. **[4]**

a) Satellite b) Non - histones
c) Kinetochores d) Histones

47) How much percent of vacuoles occupy the volume of the cell in plant cells? **[4]**

a) 50% b) 70%
c) 90% d) 80%

48) The organelle involved in respiration is____. **[4]**

a) Chloroplast
b) Golgi complex
c) Endoplasmic reticulum
d) Mitochondria

49) Select the incorrect matching. **[4]**

a) Chromosome - RNA
b) Digestive enzyme - Lysosome
c) Thylakoid - Chloroplast
d) Cristae - Mitochondria

50) Plasmodesmata take parts in: **[4]**

a) Synchronize mitotic divisions
b) Locomotion in unicellular organism
c) Movement of substances between cells
d) Cytoplasmic streaming

51) Lampbrush chromosome where two homologous chromosomes with several chiasmata with several loops in the chromatic region are found in ___. **[4]**

a) Hair cells b) Bean inflorescence
c) Egg yolks d) Skin cells

52) Who started first that new cells are formed from the division of pre - existing cells? **[4]**

a) Rudolph Virchow b) Winiwater
c) Strasburger d) Farmer and Moore

53) Which phase marks the splitting of chromatids during meiosis? **[4]**

a) Anaphase I b) Anaphase II
c) Telophase I d) Telophase II

54) What is the function of mitosis? **[4]**

a) Growth and repair b) Transfer
c) Cell division d) Growth