SOLUTION OF THE ABOVE MCQS

1) The compound that cannot undergo addition reaction is:

a. Cycloproane

b. Benzene

c. Butyne

d. None of the above

All a , b , and c can add hydrogens in the presence Ni/Pt/Cu so they can undergo addition reactions.

2) Benzene gives more stable product when undergo:

c. Electrophilic substitution reaction

3) For callus formation, auxin and cytokinin are required
in which ratio?

a. Balanced

4) For which purpose myeloma cells (cancerous B.lymphocytes) are used in the production of monoclonal antibodies?

b. Immunization with antigen

5) DNA polymerase adds nucleotide to the 3' end of the primer so the direction of replication will be?

a. 5' to 3'

6) The range of projectile is the same for two angles which are mutually;

c. Complementary

The sum of two angles which is equal to 90 is called complementary angles.

7) A wave of amplitude 20 mm has intensity I_x another wave of the same frequency but of amplitude 5 mm has intensity I_y , what is I_x/I_y?

c. 16

intensity$=\frac{power}{area}=\frac{energy}{At}=\frac{KA^2}{2At}$

hence intensity= A^2

Ratio $\frac{Ix}{Iy}=\frac{20x20}{5x5}=16$

8) The resistance of a device is designed to change with temperature. What is device?

d. A thermistor

9) I enjoy _____ tennis.

c. playing

10) Catalytic converter reduces the emission of:

a. Unburnt hydrocarbons

b. CO

c. NO

d. All of the above

11) What is the name of the carboxylic acid given below?

$HOOC(CH_2)_3COOH$

a. Propane dioic acid

12)

$$OH^-_{(Alcoholic)} + CH_3(CH_2)_2Br \rightarrow Product$$

the nature of OH^- in the above reaction is:

a. Nucleophile

OH is nucleophile in the above reaction, but $R\text{-}O^-$ is lewis base.

13) When the sperm count is high, inhibit hormone release increases which:

a. Inhibits anterior pituitary release of follicle stimulating hormone

b. Increase anterior pituitary release of follicle stimulating hormone

c. Inhibit release of luteinizing hormone

d. Increase release of luteinizing hormone

14) Implantation of embryo takes place in which week of pregnancy?

a. 1st

b. 2nd

c. 3rd
d. 4th

15) XX-XY types of sex determination pattern is present in which of the following organisms?
b. Butterflies

16) When will 1 C of charge pass a point in an electrical circuit?
a. When 1A moves through a voltage of 1V
b. When a power of 1 W is used for 1 s
c. When the current is 5 mA for 200 s
d. When the current is 10 A for 10 s

Q=It=5x10^{-3}x200=1000 mC or 1 C

17) A cell of internal resistant 2.0 Ω and electromotive force (e.m.f.) 1.5 V is connected to a resistor of resistance 3.0 Ω what is the potential difference across 3 Ω resistor.
a. 5 V
b. 1.2 V
c. 0.9 V
d. 0.6 V

V=E-Ir1
I=E/R+r=1.5/5=0.3 A
V=E-Ir=1.5-0.3x2=0.9 V

18) In a stationary wave the distance between two consecutive antinodes is 25 cm. If the wave velocity is 300 m s^{-1} then the frequency of the wave will be:

c. 600 Hz
λ = 2L=50 cm or 0.5 m
F=$\frac{v}{2L}$=300/0.5=600 Hz

19) The path___ paved, so we were able to walk
a. had been
b. was
c. has been
d. being

20) Choose the correct sentence.
a. Naila was so exhausted that she lain down for a nap.
b. Naila was so exhausted that she laid down for a nap.
c. Naila was so exhausted that she was lying down for a nap.
d. Naila was so exhausted that she will lay down for a nap.

21) The bond energy of H2 molecule $H_2 \rightarrow 2H$ is:
a. 436 Kj/mol
b. 40.7 kJ/mol
c. 272 kJ/mol
d. 436÷avogadro no Kj/mol

Book reference: chapter 3rd chemistry part 1st.

22) Considering the molecule, orbital theory (MOT) choose the correct relative energies order:

a. $\sigma_{1s} < \sigma^*_{1s} < \sigma_{2s} < \sigma^*_{2s} < \sigma_2 p_x < \pi_2 p_y = \pi_2 p_z$
b. $\sigma_{1s} < \sigma^*_{1s} < \sigma_{2s} < \sigma^*_{2s} < \pi_2 p_y = \pi_2 p_z < \pi_2 p_x$
c. $\sigma_{1s} < \sigma^*_{1s} < \sigma_{2s} < \sigma^*_{2s} < \pi_2 p_x = \pi_2 p_z < \pi_2 p_y$
d. $\sigma_{1s} < \sigma^*_{1s} < \sigma_{2s} < \sigma^*_{2s} < \pi_2 p_y < \pi_2 p_z < \pi_2 p_x$

23) The oxidation of pent -2-one (2-pentanone) with nascent oxygen gives:
a. Propanal
b. Propanoic acid
c. Ethanoic acid
d. Pentanoic acid

Carbonyl functional group holding less Carbons on one side will add OH.

24) If medulla oblongata of a person brain is damaged which of the following processes will be disturbed?
a. Thinking

b. Sleep
c. Thirst
d. Swallowing

25) Otitis media is an inflammation of which part of the body?
a. Brain
b. Middle ear
c. Lungs
d. Urinary tract

26) In which of the following disorder the structure and function of normal spinal cord is damaged?
a. Arthritis
b. Sciatica
c. Spondylosis
d. none of these

27) A stationary nucleus has nucleon number A. The nucleus decays by emitting a proton with speed v to form a nucleus with speed u. The new nucleus and the proton move away from one another in opposite direction. Which equation gives v in terms of A and u?

b. v=(A-1)u

Momentum of stationary nucleus=zero
Total nucleons in nucleus=A
Number of nucleons in new nucleus=A-1
Let 1 nucleon mass is=m
After decay:
Momentum of proton=mv
Momentum of new nucleus=-(A-1)mu (negative is taken in u because proton and nucleus travel in opposite direction)
Total momentum after decay=
momentum of proton-momentum of nucleus
=mv-(A-1)mu
From conservation of momentum
Sum of momentum before decay=Sum of momentum after decay
0=mv-(A-1)mu
mv=(A-1)um
v=(A-1)u

28) a person, travelling on a motorway a total distance of 200 km, travels the first 90 km at an average speed of 80 km h^{-1}. Which average speed must be obtained for the rest of the journey if the person is to reach the destination in a total time of 2 hours 0 minutes?

d. 126 km hr^{-1}

Total distance travelled=200 km
Distance b/w 90 km and 200 km is 200-90=110 km
Total time taken for 200 km= 2 hr
Time taken during travelling 90 km=> T=S/v =90 km/80 ms-=1.125 hr
Time taken during travelling 110 km=> 2 hr-1.125=0.875 hr
Now average velocity for 110 km is v=S/t=110/0.875=126 km/hr

29) An object of mass "m" travelling with speed "v" has a head-on collision with another object of mass "m" travelling with speed "v" in the opposite direction. The two objects stick together after the collision. What is the total loss of kinetic energy in the collision ?
a. 0
b. $\frac{1}{2}mv^2$
c. mv^2
d. $2mv^2$

Apply law of cons of momentum
The two objects will stop after the collision, hence the loss in K.E is the sum of the K.E of the two objects.
K.E=$\frac{mv^2}{2}+\frac{mv^2}{2}=mv^2$ Before collision
K.E=(o)+(0)=0 after collision
Loss=mv^2

30) He asked me what my name was and what I did.
b. He said to me, "What is your name and what do you do?"

31) Four beakers containing ethanal, ethanol, propanane and phenol separately. Aqueous

bromine was added to each beaker. A white ppt was produced in one beaker. This beaker contain:

a. Ethanol
b. Phenol
c. Ethanals
d. propanone

Phenol reacts with aqueous bromine to produce white ppt of 2,4,6 tribromophenol

32) To differentiate between the white ppt of AgCl and off-white ppt of AgBr we use:

c. Dil. Solution of NH_3

AgCl in aqueous solution of NH3 gives white colour, while that of AgBr gives pale yellow colour in NH4OH.

Book Reference: Chemistry 2nd, page 101

33) $CH_3CH_2NH_2 + C_2H_5\text{-}CO\text{-}C_2H_5 \rightarrow$ Product

a. Sheft's base
b. Diazonium sait
c. Amide
d. Imine + Amide

primary amines reacts with aldehydes or ketones yielding a condensation product called imines or schiff's bases

34) If the primer annealing temperature is increased to 94°C. What will happen?

a. Annealing
b. Extension
c. No annealing
d. Primer-dimer formation

35) Choose acids that are showing leveling effect.

i) Hcl ii) HI iii) HCl iv) HF

a. i & iv
b. i, iii & iv
c. iii & iv
d. i, ii, & iii

HCl, HI and HBr give same Ka value in water, this is also called leveling effect.

36) The experiments by Hershey and Chase helped confirm that DNA was the hereditary material on the basis of the finding that:

a. Radioactive phage were found in the pellet
b. Radioactive phage were found in the supernatant
c. Radioactive sulfur was found inside the cell
d. Radioactive phosphorus was found in the cell

1. **Radioactive** sulfur is **found** predominantly **in** the supernatant.

2. **Radioactive phosphorus** is **found** predominantly **in the cell** fraction, from which a new generation of infective phage can be isolated.

Conclusion: The active component of the bacteriophage that transmits the infective characteristic is the DNA.

37) How many nucleotides are 12 mRNA codons?

a. 12
b. 24
c. 36
d. 48

one codon=3 nucleotides
12 codons= X
X=3x12=36

38) Which of the following is a suitable vector to be incorporated with a large external DNA fragment?

a. Small size vector
b. Large size vector

c. Large size vector with no origin of replication
d. Small size vector with no origin of replication

39) A value for the acceleration of free fall on Earth is given as (10 ± 2) m s^{-2}. Which statement is correct?
a. The value is accurate but not precise.
b. The value is both precise and accurate.
c. The value is nether precise nor accurate.
d. The value is precise but not accurate.

Least count in the above value is 2

Fractional error= $\frac{L.C}{Measured\ value}$=2/100=0.2

Conclusion:

Accuracy=$\frac{1}{Fractional\ error} = \frac{1}{0.2}$=5

Precision=$\frac{1}{L.C}$=1/2=0.5

Hence Accuracy >> Precision

40) Which experimental technique reduces the systematic error of the quantity being investigated?
a. Adjust an ammeter to remove its zero error before measuring a current
b. Measuring several internodal distances on a standing wave to find the mean internodal distance
c. Measuring the diameter of a wire repeatedly and calculating the average
d. Timing a large number of oscillations to find a period

41) A metal sphere of radius r is dropped into a tank of water. As it sinks at speed v, it experiences a drag force F given by F = k r v, where k is a constant. What are the S.I base units of k?
a. Kg m^2 s^{-1}
b. Kg m^2 s^{-2}
c. Kg m^{-1} s^{-1}
d. Kg m s^{-2}

k=$\frac{F}{rv}=\frac{ma}{rv}=\frac{kg\ m\ t}{m^2t^2}$=kg m^{-1} s^{-1} (viscosity unit)

42) Choose the correct sentence.
a. How long are you wearing glasses?
b. How long do you wear glasses?
c. How long are you wear glasses?
d. How long have you been wearing glasses?

43) A Carnot engine working between 200 k and 400 k has work output of 600 J are cycle. How much heat energy is supplied to the engine from the source in each cycle.
a. 1400 J
b. 1200 J
c. 1700 J
d. 1300 J

efficiency=$\frac{T1-T2}{T1}$=200/400=0.5
Q1=Q2/ήType equation here.
=600 J/0.5=1200 J

44) What happens when charge is placed on a soap bubble?
a. It collapse
b. Its radius increases
c. Its radius decreases
d. None of the above

Like charges repell each other as a result radius increases.

45) Choose the antonym for the word "ABROGATE"
a. Transgress
b. Signify
c. Alleviate
d. Ratify
Ratify: Approve

46) Which ion is stable in aqueous solution?
a. Sc^{3+}
b. Li^{2+}

c. Ba^{3+}
d. Na^{-}

Scandium $Sc+3=3d^{0}, 2s^{0}$ is stable in aqueous solution. The other three have impossible oxidation state.

47) Colloidal particles can be separated by using:
a. Ordinary filter paper
b. Coarse filter paper
c. Fine filter paper
d. Extremely fine filter paper

Bullshit!

48) Consider the following reaction

$2FeCl_{3(aq)} + 6kl_{(aq)} \rightarrow 2Fel_{2(aq)} + 6KCl_{(aq)} + l_{2(s)}$

Rate = $K[FeCl_3]^3[Kl]^2$ choose the correct molecularly and order of the reaction respectively:
a. 2 and 2
b. 6 and 2
c. 8 and 3
d. 8 and 2

Moles of the molecules on left side=8

Order of the reaction=3

49) Which of the following nutrient is incorrectly paired with its function in plant?
a. Iron – cytochromes and chlorophyll synthesis
b. Molybdenum – cell permeability
c. Cobalt – required by nitrogen fixers
d. Calcium – formation of cell wall

Molybdenum helps in nitrogen fixation.

50) Which cells are responsible for the movement of sugar as per mass flow hypothesis?
a. Tracheids, vessel elements
b. Tracheids, companion cells
c. Vessel elements, companion cells
d. Companion cell, sieve-tubes

51) After buying green bananas or unripe avocadoes, they can be kept in a brown bag to ripen. The hormone released by the fruit and trapped in the bag is probably:
a. Abscisic acid
b. Cytokinin
c. Ethylene
d. Gibberelline acid

52) For the location/detection of a gene in a DNA library which of the following is used?
a. Primer
b. Probe
c. Restriction enzyme
d. Taq polymerase

53) Under UV illumination, DNA bands are seen in agarose due to which of the following ?
a. Agarose
b. Charge of DNA
c. Fluorescent dye
d. Radioactive dye

54) When a car travelling with constant velocity passes a stationary observer, the observer hears a change in the frequency of the sound emitted by the car .Which is statement is correct?
a. The change in frequency is greater as the car moves away than as it approaches.
b. The greater the speed of the car, the greater the change in observed frequency.
c. The observed frequency is lower as the car moves towards the observer and higher as the car moves away from the observed.
d. The volume of the sound heard by the observed does not changes as the car approaches.

$f'=\frac{v}{v+u}f$

$f'/f=\frac{v}{v+u}$

$f'/f= 1>$

55) A parachutist is falling constant (terminal) velocity. Which statement is not correct?

a. Gravitational potential energy is converted into kinetic energy of the air.

b. Gravitational potential energy is converted into kinetic energy of the parachutist.

c. Gravitational potential energy is converted into thermal energy of the air.

d. Gravitational potential energy is converted into thermal energy of the parachutist.

$K.E=1/2mv^2$

The velocity of parachute is constant because parachute is falling with terminal velocity, and the kinetic energy of the parachute remain constant too, Hence option B is correct.

56) The time period of a simple pendulum is 2 seconds. If its length is increased by 4 times , then its period becomes:

a. 16 s

b. 12 s

c. 8 s

d. 4 s

$\frac{2s}{T}=\frac{\sqrt{l}}{\sqrt{4l}}$

Cross multiplication

T=4 sec

57) Choose the correct sentence.

a. The village folk were present.

b. The village folk was present.

c. The village folks were present.

d. The village folks was present.

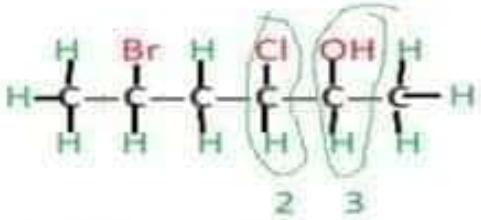
58) The number of chiral centers in a molecule of 5-bromo 3-chloro hexan-2-Ol is /are:

a. 1

b. 3

c. 2

d. 5



chiral carbons are those which are holding 4 different groups.

59) Which group when attached to benzene will increase its reactivity:

a. $-NHR^+$

b. $-NH3$

c. $-C\equiv N$

d. --COR

60) The compound which is purely acidic is:

a. $Mg(OH)_2$

b. $Al(OH)_3$

c. $Si(OH)_4$

d. None of the above

$Mg(OH)_2$ is weaker base

$Al(OH)_3$ is amphoteric

Across the period acidity of hydroxides increases.

HCLO4 > H2SO4 > H2PO4 > Si(OH)4

61) Which of the following is a non-sense codon?

a. UGA

b. UAU

c. CAU

d. GAU

Stop codons are non-sense codons. Out of 64 codons, 3 codons (stop codons) are nonsense while the rest 61 are sense codons.

Methionine(start codon) is sense codon.

62) If a disorder is not present in a child family but the fetus itself is infected before birth, it is known as?

a. Somatic mutation
b. Hereditary mutation
c. Germ line mutation
d. De novo mutation

63) What will happen if a nucleotide is deleted from a gene having 9 nucleotides in its transcriptional unit?

a. Change in phenotype
b. No change in phenotype
c. Synthesis of 3 amino acids
d. Synthesis of 4 amino acids

64) Work function for a certain surface is 3.26 eV. Minimum frequency, light must have in order to eject electron from surface will be:

d. 7.87×10^{14} Hz

$E=hf=eV$

$3.26\ eV=3.26 \times 1.6022 \times 10^{-19}=52 \times 10^{-20}$ j

$H=6.63 \times 10^{-34}$

$F=\frac{eV}{h}=\frac{52 \times 10^{-20}}{6.63 \times 10^{-34}}=7.87 \times 10^{14}$ Hz

65) The unit of planck's constant is the same as that of:

a. Angular momentum
b. Work
c. Force
d. Torque

$mvr=H$

Js = Js

66) A radioactive substance has a half-life of 60 minutes. During 3 hours, the percentage of the material that decayed would be:

a. 12.5%
b. 87.5%
c. 8.5%
d. 25.1%

Decay=$100/2^n$
Put n=3 for 3 half lives
100/8=12.5%

67) While the city has earned record revenue this year, _____ well behind in exports.

a. it still lag
b. it still lags
c. it lag still
d. it lags still

68) The compound which can be hydrolyzed by means of water is:

a. CCl_4
b. $SiCl_4$
c. CH_4

SiCl4 is non-polar, although it can easily be hydrolyzed with water because of Silicon atom size, the empty d orbitals in silicon can accommodate lone pair of electrons from water.

69) Choose the correct statement about cycloalkanes:

a. Cyclopropane and cyclobutane are liquids at room temperature
b. Cycloalkanes are insoluble in ethanol and ether but soluble in water
c. Their melting and boiling points show a gradual increase with increase in no of carbon.
d. Both (b) & (c) are correct

70) Which one is a strong nucleophile:

a. $C_6H_5-O^-$
b. $H-O^-$

c. NH_3

d. $C_2H_5-O^-$

The electron density is more dispersed on acetate ion and is not easy to donate. While, the electron density on phenoxide ion is less dispersed and it is easy to donate it. Hence phenoxide ion is better nucleophile than acetate ion.

The other two b and c are bases.

71) Choose the correct arrangement of the various regions of the electromagnetic spectrum in terms of wave lengths.

a. IR > un > visible > microwave > radio frequency

b. Microwave> IR > uv > visible > > radio frequency

c. Radio frequency > microwave > IR > visible > uv

d. Visible > IR > uv > microwave > radiowave

72) If one of the following component is missing bacteria can not increase the number of its plasmid copies?

a. Antibiotic resistant gene

b. Origin of replication

c. Cloning site

d. Ligases enzymes

73) Identify the mismatch pair in the following.

a. Cyanobacteria- primary producer

b. Grasshopper-primary consumer

c. Fungi-decomposer

d. Zooplankton-secondary consumer

Book-reference: Environmental biology- 2nd

74) What will happen if a vector (plasmid) is cut with a different restriction enzyme which cuts the external DNA to be incorporated in the vector (plasmid)?

a. Ligation

b. No ligation

c. Tight ligation

d. Cloning

75) The acceleration of free fall on the Moon is one-sixth of that on Earth on Earth, it takes time "t" for a stone to fall from rest a distance of 2 m on the moon. What is the time taken of stone to fall from rest a distance of 2m on the moon?

a. 6t

b. $\frac{t}{6}$

c. $t\sqrt{6}$

d. $\frac{t}{\sqrt{6}}$

$$\frac{t}{T}=\frac{\sqrt{\frac{2h}{g}}}{\sqrt{\frac{2h}{\frac{g}{6}}}}$$

$$\frac{t}{T}=\frac{1}{\sqrt{\frac{1}{\frac{1}{6}}}}$$

$$\frac{t}{T}=\frac{1}{\sqrt{6}}$$

$T=t\sqrt{6}$

76) Before a thunderstorm, the hairs on your head sometimes stand on end. A hair with mass 0.50 mg and charge 1.0 pC is supported by a force due to an electric field. Ignore any forces other than the weight of the hair and the electric force. What is the electric field strength ?

a. 4.9×10^{3} N/C

b. 4.9×10^{5} N/C

c. 4.9×10^{6} N/C

d. 4.9×10^{9} N/C

$E=\frac{F}{q}=\frac{mg}{q}=\frac{0.5x10^{-3}x9.8}{1x10^{-12}}=4.9x10^{9}$ N/C

77) Two lamps are connected in series to a 250 v power supply. One lamp is rated 240 v, 60 w and the other is rated 10 v, 2.5 w. Which statement most accurately describes what happens ?

a. Both lamps light at less than their normal brightness.
b. Both lamps light at their normal brightness.
c. Only the 240v lamp lights
d. The 10v lamp blows.

Genius students can ans in seconds with out solution.

Solution:

In series power and resistor are related as,

$P=V^2/R$

R1=250x250/60=1041 ohm

$R2=V^2/P=250x250/2.5=25000$ ohm

V across 60 watt=$\frac{VR1}{R1+R2}=\frac{250xR1}{R1+R2}$73 V

V across 2.5 watt=$\frac{VR2}{R1+R2}=\frac{250xR1}{R1+R2}$=177 V

Hence 2.5 watt or 10 v lamp will blow, because it cant tolerate 177 V across it.

78) Every person must learn _____

a. that how wisely his time can be used.
b. to make wise use of this time.
c. that his time needs a wise uses
d. to using his time in a wisely manner.

79) In movies during fighting a blood red solution is using as an artificial blood. Which of the following complex ion is used for this solution?

a. $[Fe(H_2O)_6]^{+2}$
b. $[Cu(NH_3)_4(H_2O)_2]^{+2}$
c. $[Fe(SCN)(H_2O)_5]^{+2}$
d. $[Fe(H_2O)_6]^{+3}$

Reaction of Iron (III) ions with thiocynate ions

Book reference: Chem 2nd , Chapter 2, page 75.

80) The compound which can form hydrogen bond with water is:

a. $CH_3–O–CH_3$
b. $CH_3–CH_2–OH$
c. $CH_3–CH_2–NH_2$
d. None of the above

Both b and c can form H bonding with water.

Tertiary amines cant form H bonding with water.

Note: Secondary amine is more basic than Tertiary amine due the absence of H bonding in ter amine with water.

81) The compound with most exothermic lattice energy is:

a. $CaCl_2$
b. K_2O
c. CaO
d. $BaCl_2$

Larger Cation=strong ioninc bond
Smaller cation=weak ionic bond
Larger anion=weak ionic bond
Smaller anion=strong ionic bond
Anion having greater charge=Strong ionic bond
Cation having greater charge=strong ionic bond
$C+^2$=2 coloumb charge
O^{-2}=2 coulomb charge
Force of attraction=$Kq1q2/r^2=2x2=4$ F

82) Sarcolemma is the membrane around?

a. Bone
b. Joints
c. Muscle fibre
d. Heart

83) The deficiency of calcitonin result in ?

a. Bone formation
b. Kidney stone
c. Hyperthyroidism
d. Hypothyroidism

The blood is more concentrated of calcium when the calcitonin is less and parathormone is greater.

84) In which of the following the female workers are sterile?
a. Ants
b. Honeybee
c. Baboon
d. Parrots

85) If in a situation some bacteria infected by a certain. Phages had somenow developed the ability to make a particular amino acid that was not in their genes before. What would be the possible explanation to this new ability?
a. Introduction
b. Transformation
c. Transduction
d. Conjugation

86) Identify in which of the following the genetic information is catalyzed using reverse transciptase?
a. Protein → DNA
b. RNA → DNA
c. DNA → RNA
d. RNA → Protein

87) Which one is not a opportunistic disease related to HIV infection.
a. Destruction of body immune system
b. Recurrent pneumonia
c. Pulmonary tuberculosis
d. Toxoplasmosis

88) A turning fork A produces 4 beats / second with another turning fork B of frequency 280.Hz.When fork A is loaded with a little wax, the beat frequency change to 2. The frequency of fork A before loading is:
a. 292 Hz
b. 284 Hz
c. 290 Hz
d. 288 Hz

F_A-F_B=284-280=4 beats/s

89) The sound wave of frequency more than 20 kHz are termed as:
a. Supersonic
b. Audible
c. Infrasonic
d. Ultrasonic

90) The refractive index is equal to the tangent of the angle of polarization. It is called:
a. Brewster's Law
b. Malu's Law
c. Bragg's Law
d. Grimaldi's Law

91) "He is busy. Would you like to leave a message?" said the assistant.
a. The assistant told that he is busy and asked me to leave a message.
b. The assistant told that he was busy and ask me to leave a message.
c. The assistant told that he was busy and asked me to leave a message.
d. The assistant told that he was busy and asked me to leave a message?

92) The less energetic and more stable compound among the following is:
a. Cyclobutane
b. Hex-1-ene
c. Cyclopropane
d. Propene

the c=c bond in propene is more stable than hex-1-ene due to the presence of less alky groups.

93) Amorphous solids are made by fusing silicates with:
a. Boric acid

b. Aluminum oxide
c. Phosphorus pent oxide
d. All of the above

94) What is the product when chlorine gas is passed over element silicon in powdered state on heated it produce colorless liquid having formula?
a. $SiCl_2$
b. $SiCl_4$
c. Si_2Cl_3
d. SiCl

95) Compound resistant to thermal decomposition is:
a. Li_2CO_3
b. $NaNO_3$
c. $Ba(NO_3)_2$
d. Na_2CO_3

EXCEPT Li, Carbonates of group first elements are resistant to thermal decomposition.

96) If CO_2 level increased from the normal level, what will happen ?
a. Decrease in sea level
b. Increase in sea level
c. Longer winter season
d. Daytime will increase

97) Approximately how much calories of free energy is stored in plant biomass for every mole of CO_2 fixed during photosynthesis ?
c. 114

bakwas!

98) Which of the following vaccine has least side effects?
a. Attenuated vaccine
b. Killed vaccine
c. Subunit vaccine
d. Toxoid vaccine

99) The energy stored in the spring of watch is:
a. Kinetic energy
b. Electric energy
c. Elastic potential energy
d. Solar energy

100) The kinetic energy and potential energy of a particle executing simple harmonic motion will be equal for the displacement (where x_0 is the amplitude)
c. $\frac{x_0}{\sqrt{2}}$

K.E$=\frac{1}{2}U$ (Kinetic energy is half of total Energy U)

$\frac{1}{2}kx^2=\frac{1}{2}(\frac{1}{2}kx_0^2)$

$X^2=\frac{1}{2}x_0^2$

Apply square root on both sides

$X=\frac{x_0}{\sqrt{2}}$

101) If x-component of a vector is $\sqrt{3}$ and y-component is 1, then the angle made by the vector along x-axis is:
b. 30^0

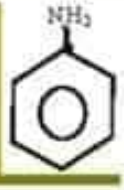
$abcos\theta=\sqrt{3}absin\theta$

$$\frac{sin\theta}{cos\theta}=\frac{ab}{ab\sqrt{3}}$$

$$Tan\theta=\frac{ab}{ab\sqrt{3}}=\frac{1}{\sqrt{3}}$$

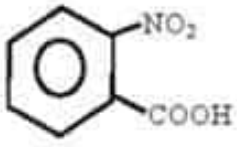
$$\theta=\tan-\left(\frac{1}{\sqrt{3}}\right)=30°$$

102) Which compound will undergo substitution reaction faster than benzene?

b. 

NH2 being electron donor activates benzene ring for substitution reaction.

103) The IUPAC name of the compound given below:



C. O-nitrobenene methanoic Acid

104) The first organism that oxygenated the atmosphere:

a. Cyanobacteria

105) What event is thought to have contributed to the evolution of eukaryotes:

d. Oxygenation of the atmosphere

106) Which of these locomotor organs would likely be the shortest:

b. A cilium

107) In Young's double slit experiment with sodium light, the slits are 0.589 m apart. What is the angular width of the 3rd maxima given=589 nm:

a. $Sin^{-1}(3x10^{-6})$

$d\sin\theta = m\lambda$

$\sin\theta = \frac{m\lambda D}{d} = \frac{3x589x10^{-9}}{0.589}$

$(\frac{3x589x10^{-9}}{589x10^{-3}}) = 3x10^{-6}$

$\theta = \sin^{-}(3x10^{-6})$

108) Which of the following cannot be polarized?

d. Ultrasonic waves

Sound waves are longitudnal waves, they can't be polarized.

109) When a ray of light enters a glass slit from air:

a. Its wavelength decreases

When wave enters from light to denser medium its wavelength decreases by 180^{o}.

110) Choose the antonym of the word "UNTENABLE"

c. Supportable

111) Coagulation of proteins may be caused by:

a. Heat

chpter 10th solution and colloids

Coagulation of proteins increase with increase in heat. One should not wash their blood spotted clothes with warm water, rather he should use cold water.

112) Kolbe's electrolysis of sodium butyrate $CH_3CH_2CH_2CH_2CH_2COONa$ gives:

d. C_5H_{12}

Alkane is produced through Kolbe's electrolysis/Decarboxylation/removal of co2.

Chapter: carboxylic acids , page#304

113) Chlorine gas dissolve in water to some extent to give:

b. Greenish colored solution

Chpter: S and P block , page#7

114) One of the following statement is true regarding Basidiomycota:

c. Hyphae fuse to give rise to dikaryotic mycelium

115) The sprouting gametophyte of a moss consists of a filamentous, branched structure called:

c. Protonema

See, fig: 8.4 on page 188

116) Which seedless plant is renewable source of energy:

c. Sphagnum moss

117) Light of waves $500x10^{-9}$ m falls normally on plane diffraction grating having $8x10^{+3}$ lines per cm. The minimum number of images seen is:

c. 5

$d=m\lambda$

The minimum number of images dark+bright is

$d=\frac{1\,cm}{8000}=0.000125$ cm or $1250x10^{-9}$ m (MKS system)

$m=\frac{2x1250x10^{-9}\,m}{500x10^{-9}}=\frac{2500}{500}=5$

Number of bright fringes is 3.

118) The speed of sound in air at NTP is 300 m s^{-1}. If the pressure becomes 4 times then the speed of sound will be:

b. 300 /s

Speed of sound is independent of pressure.

119) Standing waves are produced in 10 m long stretched string. If the string vibrates in 5 segments and wave velocity is 20 m/s. Its frequency is:

c. 5 Hz

$v=f\lambda,\ f=\frac{v}{\lambda}=\frac{20}{(\frac{2L}{n})}=5$

120) Why did your supervisor take such a strong disciplinary action when you were innocent:

c. Why was such a strong disciplinary action taken by your supervisor when you were innocent?

121) Ka values of some compounds are given below select the correct order of acidic strength:

Alcohols 10^{-15}-10^{-18}, water 10^{-14}, carboxylic acids 10^{-5}

a. ROH > H_2O > C_6H_5OH > RCOOH
b. C_6H_5OH > H_2O > ROH > RCOOH
c. RCOOH > C_6H_5OH > H_2O > ROH
d. RCOOH > ROH > C_6H_5OH > H_2O

122) The compound which cannot be hydrolyzed by water is:

b. none of the above

123) KOH alcoholic + $CH_3C(CH_3)_2\ CH_2Br_{(l)}$

→ The reactants in the condition given will undergo:

b. Elimination reaction

Teritiary alkyl halides in the presence of strong base undergo E1 reaction.

124) Phosphorus (white) catches fire in air and burns with the formation of white smoke the product formed is:

a. Phosphorus (iii) oxide
b. Phosphorus (v) oxide
c. Phosphorus (ii) oxide
d. Both (a) & (b)

chapter: s and p block

125) Coordination number six complexes having d^2Sp^3 hybridization exist in:

d. Octahedral shape

Chapter: d and f block

126) What types of hybridization is/ are present in Hex-4ene 1-yne:

d. Sp, Sp^2, Sp^3

$CH\equiv C-CH2-CH=CH-CH3$

Single bond(109.5°)= SP^3
Double bond(120°)=SP^2
Triple bond(180°)=SP

127) In order to see various aspects of specimen a three dimensional image of the object can be produced using:

d. Scanning electron microscope

128) The usual position of the two centrioles in relation to each other is at right angle in:

a. Higher plant cell
b. Lower plant cells
c. Animal cells
d. Both (b) & (c)

Higher plants do not posses centrioles.

129) In saturated fatty acids more hydrogen are not accommodated because of:

a. Presence of single bonds between carbon atoms

130) A particle executes SHM along a straight line. Its amplitude is A. The potential energy of the particle is equal to the kinetic energy,

when the displacement of the particle from the mean position is:

c. $\pm A/\sqrt{2}$

K.E$=\frac{1}{2}U$ (Kinetic energy is half of total Energy U)

$\frac{1}{2}kx^2=\frac{1}{2}(\frac{1}{2}kx_o^2)$

$X^2=\frac{1}{2}kA^2$

Apply square root on both sides

$X=\frac{A}{\sqrt{2}}$

131) In S.H.M., the fraction of kinetic energy to total energy when displacement is one-half of the amplitudes is:

d. ¾

K.E$=\frac{1}{2}kA^2$

$X=\frac{A}{2}$

Use pythagoras' theoram For Amplitude

$A^2=A_o^2-A^2$

K.E'$=\frac{1}{2}K(A^2-\frac{A}{2})^2$

K.E'$=\frac{1}{2}K(3/4A)^2$

K.E'$=_{3/4}$ K.E

132) Laplace corrected Newton's formula for the velocity of sound in gases, because the sound propagates:

b. Adiabatically

133) Rhizobium belongs to:

c. Alpha-protobacteria

134) Poisonous red-tides in coastal area are caused by the blooms of:

a. Euglenozoids
b. Rhodophyta
c. Diatoms
d. Dinoflagellates

135) Two bodies are dropped from different heights h_1 and h_2. The ratio of the times taken by them to reach the ground will be:

a. $h_2^2 : h_1^2$
b. $h_1 : h_1^2$
c. $\sqrt{h1} : \sqrt{h2}$
d. None of them

$H=v_it+_{1/2}gt^2$

vit=zero

$H=gt^2/2$.....g/2=constant

$\frac{T1}{T2}=\frac{\sqrt{H1}}{\sqrt{H2}}$

136) A bullet of mass m moving with a velocity u is fired into large wooden block of mass M. of the bullet remains embedded in the wooden block, the velocity of the system will be:

a. $\frac{M}{M+m}V$

b. $\frac{m}{M+m}V$

c. $\frac{M}{M-m}V$

d. $\frac{m}{M-m}V$

Law of conservation of momentum

Momentum before collision = momentum after collision

$mu+M(0)=mv_1+Mv_2$

$mu=v(m+M)$.....(v is same or common)

$v=\frac{mu}{m+M}$

137) A particle is moving with a constant speed along a straight line. A force is NOT required to:

a. Increase Speed
b. Decrease the momentum
c. Change the direction
d. Keep it moving with uniform velocity

F=mv/t

Rate of change of velocity/momentum/speed is equal to force.

138) He is grieving _____ his deceased father.

a. at
b. for
c. on
d. over

139) Which of the following atoms in the given oxidation state have the highest electro negativity.

a. Mo (ii)
b. Mo (iii)
c. MO (v)
d. Mo (vi)

trend

Mo(i) > Mo(ii)> M(iii)

F(1)> O (2)> N(3)

140) The existence of He_2 is not possible because:

c. It violate the Pauli Exclusion principle

141) Choose the anisotropic behavior

a. Coefficient of thermal expansion

Chapter: solids (chemistry first year)

142) Acetabulariamediterranea is:

b. An algae

Chpter: development and aging
" Role of nucleus and cytoplasm "

143) Excess of Ag_2CrO_4 was dissolved in distilled water its solubility was found to be 1.3×10^{-4} mol dm^{-3} what is the solubility product:

b. $Ksp = [2.6 \times 10^{-4}]^2 [1.3 \times 10^{-4}]$

144) Double fertilization occurs is:

d. Maize

Double fertilization occurs only in angiosperms i.e maize, almond, flowers etc.

145) Most conspicuous sea weeds are:

d. Brown algae

Book line

146) An acinus is composed of:

b. 20-40 Acinars

Chpter: 11th digestion

147) A circular disc of mass M and radius R is rotating about its axis with uniform speed v its kinetic energy is:

c. ¼ Mv^2

$K.E = K.E_r + K.E_l$ _____ (1)

$K.E_l$ Linear motion is zero.

Hence $K.E = K.E_r$

Rotational K.E for disc $= K.E_r = \frac{Iw^2}{2}$

$I = \frac{mr^2}{2}$ *for disc*

$K.E_r = \frac{1}{2}(\frac{mr^2w^2}{2})$ ..... $(wr)^2 = v^2$

$K.E_r = \frac{mv^2}{4}$

148) Moment of inertia of an object does not depend upon:

c. Angular Velocity

$I = MR^2$

There is no relation b/w I and w (omega)

149) A body of mass 10Kg is hanging from a spring balance inside a lift. If the lift falls with an acceleration $10ms^{-2}$, then what will be the reading of spring balance:

a. Zero

w=mg

for downward motion g=g'-a

w=m(g-a)=10(10-10)=0

150) That a driver swerves in order to avoid an accident can be proven by examining the marks on the pavements.

b. Turns sharply

151) A container is having mixture of gases, 20% ammonia, 30% hydrogen and 50% oxygen under 50a.t.m pressure choose the correct partial pressure respectively.

b. 10 atm, 15 atm, 25 atm

Partial pressure=PX

for ammonia X=20%/100%=0.2, PX=50x0.2=10

for Hydrogen X=30%/100%=0.3, PX=50x0.3=15
for oxygen X=50%/100%=0.5, PX=50x0.5=25

152) A man walks for some time with velocity v due east. Then he walks for same time with velocity v due north. The average velocity for the man is:

c. v

Average velocity=$2v_1v_2/v_1+v_2=2v^2/2v=v$

While the change in velocity is $\sqrt{2}v$

153) The sum of 2 forces acting at a point 16N. if the resultant force is 8N and its direction is perpendicular to minimum force, then the force is:

a. 6N and 10N

6+10=16

$Y^2=X^2+R^2+(2XR\cos\Theta)^2$

$(10)^2=(R)^2+(6)^2+2R6\cos90$

$R=\sqrt{(10)^2}-\sqrt{(6)^2}=\sqrt{64}=8$

154) A body walks to his school at a distance of 6Km with a speed of 3Km/h and walks back with a constant speed of 2Km/h. his average speed for round trip in Km/h is:

b. 2.4

$\langle v\rangle=\frac{2v1v2}{v1+v2}=\frac{12}{5}=2.4$

155) Though Aleem is poor, _____ he is honest.

b. nevertheless

iss k baujood(urdu)

156) Which cation is unstable in aqueous solution?

c. Sn^{2+}

Sn can be found in group 4th which has 2 electrons in its outer P subshell, therefore it has to loose 2 electrons to become stable, rather than +3.

157) Choose the incorrect statement about corrosion.

b. Employing modern techniques corrosion can be completely eliminates.

Corrosion cant be eliminated completely, however it can be prevented upto certain extent.-book line page#348 ch#12

158) AlBr3 which is used in the alkylation of benzene possess the properties of:

a. A catalyst
b. A Lewis Acid
c. An electron deficient specie

d. All of the above.

159) 2-$FADH_2$ can yield energy:

a. 4 ATP

One $FADH_2$=2 atp,
One $NADH_2$=3 atp
One $NADH_2$ of glycolysis=2 atp.

160) ABO blood group is an example of:

d. Multiple alleles and co dominance

161) In a mating between two individuals that are heterozygous for a recessive lethal allele. What genotypic ratio (homozygous dominant: heterozygous: homozygous recessive) would you expect to observe in the offspring?

c. 1:2:0

162) How much kinetic energy will be gained by an α −particle ion going from a point at 70 V to another point at 50 V?

a. 40 eV

potential difference=v=70-50=20 V
q=2q for alpha particle
K.E=qV=2x20=40 eV or $40x1.6x10^{-19}$ J

163) The potentials of the two plates of a capacitor are +10V and -10V. The charge on one of the plates is 40C. The capacitance of the capacitor is:

a. 2 F

Potential difference=+10-(-10)=20
Q=CV
$C=\frac{Q}{V}=\frac{40}{20}=2\,F$

164) In a simple electrical circuit, the current in a resistor is measured as (2.50 ± 0.05) mA. The resistor is marked as having a value of 4.7± 2%. If these values were used to calculate the power dissipated in the resistor, what would

be the percentage uncertainty in the value obtained?

c. 6%

% error in current=0.05/2.5x10=2%

% error in resistance=2%

% Error in power=$P=I^2R$=2x2+2=6%

165) Choose the synonym for the word "ABRIDGE"

b. Shorten

166) Choose the true product of the following reaction? $CH_3C \equiv N + 2H_2O + HCl \rightarrow$

b. $CH_3COOH + NH_4Cl$

167) Which polyatomic anion is unstable in solution?

a. BO^{-2}

b. SnO_3^{-2}

c. $S_2O_3^{-2}$

d. MnO_4^{2-}

the oxidation number of S in $S2O3^{-4}$ is 1 which is unstable.

168) Choose the molecule that could not be represented by single electronic structure formula:

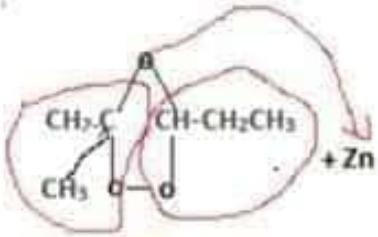
c. SO_2

169) Alkene + O_3 → Ozonide + Zn+H_2O

Propanone + Propanal the IUPAC name of the alkene is:

d. 2-methyl pent-2-ene

$CH_3C(CH_3)=CH\text{-}CH_2CH_3 + O_3 \rightarrow$



=> CH3-co-CH3 + H-Co-CH2-CH3 + ZnO

(propanone) (Propanal)

170) If a new born baby possesses, carboxy hemoglobin instead of oxyheamoglobin, the condition may be:

c. Cyanosis

Biology ch#12 "CYNOSIS"

171) Of 100 ml of Arterial blood, oxygen provided to the tissues is:

d. 5 ml

100 ml blood can carry 20 ml oxygen, 5 ml is provided to the tissue and 15 ml is returned back to the heart through veins.

172) Nervous system that prepares itself fight of flight:

b. Sympathetic

The sympathetic nervous system's primary process is to stimulate the body's fight-or-flight response.

173) In a stream lined flow, the velocity of the liquid in contact with the containing vessels is:

b. Minimum but not zero

Minimum=due to adhesion water molecules with the walls of the vessel.

174) Eight drops of water, each radius 2 min are falling through air at a terminal velocity of 8cm s^{-1}. If they coalesce to form a single drop, the terminal velocity of the combined drop will be:

d. 32cms^{-1}

Trick: $v=(n)^{2/3}v=(8)^{2/3}xv=4v=32\ cms^{-1}$

175) The frequency of a second's pendulum is:

a. 1 Hz

b. 2 Hz

c. 5 Hz

d. None of the above

T of second's pendulum= 2s

$F=\frac{1}{T}=\frac{1}{2}=0.5\ Hz$

176) It is a general perception that doctors have callous disregard for the feelings of others, (The underlined word nearly means).

c. Unfeeling

Callous means Sangdil (urdu)

177) The ratio of the electric force between two protons to that between two electrons is of the order of:

d. 1

$F=kq_1q_2/r^2$,

q(charge) magnitude is same for both proton and electron so they will experience the same force.

178) When 10^{12} electrons are received from a neutral metal sphere. The charge on the sphere becomes:

a. 0.16 μc

$Q=ne=10^{12}x1.6x10^{-19}=0.16\ \mu c$

Sphere being given electrons, left with positive 0.16 μc *charge*..

179) An electric charge in an accelerated motion produce:

a. An electric field only
b. A magnetic field only
c. Electromagnetic radiation only
d. All of the above

Accelerated charge produce all of these, however, non accelerated(constant moving) charge produce only 2 fields i.e. Magnetic and electric fields. Stationary charge produce only electric field.

180) Choose the synonym for the word "ATTENUATE".

c. Weaken

verb

181) At standard conditions 45 liters of oxygen gas weights about 6g, where as 45 liters of hydrogen weights only about 4g. Which gas diffuses faster? Calculate how much faster.

a. Hydrogen, 4yO_2

According to Grahm's law of diffusion,

$D=\frac{1}{\sqrt{M}}$

Where M is the molar mass of the gas.

For H2 and O2 is $\frac{D1}{D2}=\sqrt{\frac{M2}{M1}}=\sqrt{\frac{32}{2}}=4$

Hence, the rate of diffusion and effusion of H2 is 4 times greater than that of O2.

Notice that it depends on molar mass of a gas only i.e. H2=2 g, HCl 18.5 g...

182) Arrange the following oxide of chromium in increasing acidic character:

b. $CrO_3>Cr_2O_3>CrO$

Cr with higher oxidation state is more acidic.

Oxidation number of Cr in CrO3=6

Cr2O3=3

CrO=2

183) Choose Mercaptans of the following:

b. $\frac{R}{H}>S$

R-SH-> The sulphur analogue of alcohols are called Thiols or alkyl hydrogen sulphides or Merceptans

CHPTER: Alcholos, phenols... page#238

184) If black and white true breeding mice are mated and the result is all gray offspring, what inheritance pattern would this be indicative of?

d. Incomplete Dominance

In incomplete dominance, One allele for a specific trait is not completely expressed over its paired allele. This results in a third phenotype in which the expressed physical trait is a combination of the phenotypes of both alleles(white+black=grey).

Book example: white+red=Pink

185) The rules forbid passengers to cross the railway line.

c. Passengers are forbidden by the rules to cross the railway line.

186) Many hexaaqua complex ions can undergo reaction with water as given below: The reaction is classed as:

d.Substitution reaction

Transition metal hexaaqua ions undergo ligand susbtitution reactions whereby the water ligands are replaced by ammonia or chloride...

187) Propene react with hypochlorous acid to form

b. CH3-CH-CH2Cl

OH

Cl is positive in HOCL.

According to Markovnikov's rules, When an unsymmetrical reagent is added to an unsymmetrical alkene, the positive part of the reagent attaches itself to that carbon atom involved in the double bond, having greater number of hydrogen atoms.

Page#135

188) Which of the following radiations cannot cause excitation in a molecule:

d. None of the above

Uv/Vis raddiation can excite electrons. Visible radiations include VIBGYOR-> violet, indigo, blue, green, yellow, orange and red. Notice that, unlike

UV/Vis radiation, infrared radiation cant cause excitation, however it causes vibrations in a molecules' bonds.

189) Which of the following do not play a role in intracellular movement?

d. Only microfilaments

190) Which statement about thylakoids in eukaryotes is not correct?

b. Thylakoids exist as a maze of folded membranes.

This statement is true for prokaryotes.

191) The three non infective genes in HIV are:

d. gag, pol, env

192) A bomb explodes on the moon. How long will it take for the sound to reach the earth:

d. None of the above

Sound waves can't travel in space.

193) Macronutrients are:

a. K-Mg-N-P

Chapter: 10-bio

194) Spaghnum is also called as:

b. Peat moss

Chapter: 8-bio

195) A body of mass 2 Kg collides with a wall with speed 100ms^{-1} and rebounds with the same speed the force exerted on the wall is 2 x 10^{4} N. The time of contact is:

a. 1/50 Sec

Sol:

Change in momentum mv=mv$_f$-(-mv$_i$)=2mv

F=change in mv/t

$$=2\frac{mv}{t} \Rightarrow t = 2\frac{mv}{F} = \frac{400}{20000} = \frac{1}{50}$$

196) An engine pumps out 40 Kg of water in one second. The water comes out vertically upwards with a velocity of 3ms^{-1}, the power of engine in kilowatt is:

a. 1.2 kw

Sol:

Power=$\frac{mgh}{t}$=mgv (h=d, d/t=v)

P=mgv=40x10x3=1200 watt or 1.2 Kw (k=1000)

197) Two boys weighing in the ration 4:5 goes up stair taking time in the ratio 5:4. The ratio of their power is:

b. 16/25

Sol:

$$\text{Power}=\frac{mgh}{t}=\frac{m}{t} \quad (gh=1)$$

$$P_1=\frac{m1}{t1}$$

$$P_2=\frac{m2}{t2}$$

$$\text{Ratio } \frac{P1}{P2}=\frac{m1t2}{m2t1}=\frac{4x4}{5x5}=\frac{16}{25}$$

198) A thrifty buyer purchases fruits and vegetables in season. (The underlined word nearly means)

a. Careful

199) 10.0dm^3 gas cylinder containing mixture of various gases 50cm^3 of nitrogen gas is in the mixture what is the concentration of N_2 gas in part per billion (ppb):

c. $\frac{50}{10000}x10^6$

Part per billion PPB=10^6

10 dm^3=10x1000=10000 cm^3

$$\frac{50\ cm3}{10000cm3}xPPB = \frac{50}{10000}x10^6$$

200) Consider the following reactions.

i. $C_2H_{4(g)} + H_{2(g)} \rightarrow C2H_{6(g)}$ ii. $N_{2(g)} + 3H2_{(g)} \rightarrow 2NH_{3(g)}$

Choose the catalysts employed for the reaction.

c. Ni for reaction (i) and Fe_2O_3 for (ii)

Born haber's cycle and hydrogenation of of alkenes.

MCQS OF MY PAGE

ETEA 2018 MCQS

1) A car moving at speed 50 km/h one applying brake stops at a distance of 6m. If same car move with the velocity 100 km/h, what distance it cover after applying the brakes.

a. 12

b. 18