1.

In vitro fertilization is a technique that involves transfer of which one of the following into the Fallopian tube?

1. Embryo only, up mto 8 cell stage
2. Either zygote or early embryo up to 8 cell stage
3. Embryo of 32 cell stage
4. Zygote only

2.

Which one of the following structures between two adjacent cells is an effective transport pathway?

1. Plasmodesmata
2. Plastoquinones
3. Endoplasmic reticulum
4. Plasmalemma

3.

Single-celled eukaryotes are included in

1. Protista
2. Fungi
3. Archaea
4. Monera

4.

The genetically-modified (GM) brinjal in India has been developed for

1. insect-resistance
2. enhancing self-life
3. enhancing mineral content
4. drought-resistance

5.

In unilocular ovary with a single ovule, the placentation is

1. marginal
2. basal
3. free central
4. axile

6.

An element playing important role in nitrogen fixation is

1. molybdenum
2. copper
3. manganese
4. zinc

7.

Sertoli cells are found in

(1) ovaries and secrete progesterone
(2) adrenal cortex and secrete adrenaline
(3) seminiferous tubules and provide nutrition to germ cells
(4) pancreas and secrete cholecystokinin

8.

Which one of the following cannot be explained on the basis of Mendel's Law of Dominance?
(1) The discrete unit controlling a particular character is called a factor
(2) Out of one pair of factors one is dominant, and the other recessive
(3) Alleles do not show any blending and both the characters recover as such in F_2 generation
(4) Factors occur in pairs

9.

Apomictic embryos in Citrus arise from

1. synergids
2. maternal sporophytic tissue in ovule
3. antipodal cells
4. diploid egg

10.

One example of animals having a single opening to the outside that serves both as mouth as well as anus is

1. Octopus
2. Asterias
3. Ascidia
4. Fasciola

11.

Select the correct statement from the ones given below

1. Barbiturates when given to criminals make them tell the truth

2. Morphine is often given to persons who have under gone surgery as a pain killer

3. Chweing tobacco lowers blood pressure and heart rate

4. Cocaine is given to patients after surgery as it stimulates recovery

12.

Listed below are four respiratory capacities (1-4)and four jumbled respiratory volumes of a normal human adult

Respiratory capacities	Respiratory volume
(1) Residual volume	2500 mL
(2) Vital capacity	3500 mL
(3)Inspiratory reserve volume	1200 mL
(4) Inspiratory capacity	4500 mL

Which one of the following is the correct matching of two capacities and volumes?

1. (1) 2500 mL, (4) 4500 mL

1. (3) 1200 mL, (1) 2500 mL

3. (2) 3500 mL, (3) 1200 mL

4. (4) 4500 mL, (2) 3500 mL

13.

The chief water conducting elements of xylem in gymnosperms are

1. vessels

2. fibres

3. transfusion tissue

4. tracheids

14.

Ringworm in humans is caused by

1. bacteria

2. fungi

3. nematodes

4. viruses

15.

Which one of the following is not a micronutrient?

1. Molybdenum

2. Magnesium

3. Zinc

4. Boron

16.

Membrane-bound organelles are absent in

1. Sachharomyces

2. Streptococcus

3. Chlamydomonas

4. Plasmodium

17.

Vasa efferentia are the ductules leading from:
(1) Testicular lobules to rete testis
(2) Rete testis to vas deferens
(3) Vas deferens to epididymis
(4) Epididymis to urethra

18.

Select the correct statement from the following:
(1) Biogas is produced by the activity of aerobic bacteria on animal waste
(2) Methanobacterium is an aerobic bacterium found in rumen of cattle
(3) Biogas, commonly called gobar gas, is pure methane
(4) Activated sludge-sediment in settlement tanks of sewage treatment plant is a rich source of aerobic bacteria

19.

Select the two correct statements out of the four (a-d) given below about lac operon.
(a) Glucose or galactose may bind with the repressor and inactivate it
(b) In the absence of lactose the repressor binds with the operator region
(c) The z-gene codes for permease
(d) This was elucidated by Francois Jacob and Jacque Monod
The correct statements are :
(1) (b) and (c)
(2) (a) and (c)
(3) (b) and (d)
(4) (a) and (b)

20.

Keel is characteristic of the flowers of:
(1) Gulmohur
(2) Cassia
(3) Calotropis
(4) Bean

21.

The kind of epithelium which forms the inner walls of blood vessels is:
(1) cuboidal epithelium
(2) columnar epithelium
(3) ciliated columnar epithelium
(4) squamous epithelium

22.

Which one of the following has its own DNA?
(1) Mitochondria
(2) Dictyosome
(3) Lysosome
(4) Peroxisome

23.

Transfer of pollen grains from the anther to the stigma of another flower of the same plant is called

1. xenogamy

2. geitonogamy

3. karyogamy

4. autogamy

24.

The genotype of a plant showing the dominant phenotype can be determined by

1. test cross

2. dihybrid cross

3. pedigree analysis

4. back cross

25.

PGA as the first CO_2 fixation product was discovered in photosynthesis of –
(1) Bryophyte
(2) Gymnosperm
(3) Angiosperm
(4) Algae

26.

Study the four statements (a–d) given below and select the two correct ones out of them –
(a) A lion eating a deer and a sparrow feeding on grain are ecologically similar in being consumers
(b) Predator star fish Pisaster helps in maintaining species diversity of some invertebrates
(c) Predators ultimately lead to the extinction of prey species
(d) Production of chemicals such as nicotine, strychnine by the plants are metaboilic disorders
The two correct stament are-
(1) a and d (2) a and b
(3) b and c (4) c and d

27.

Seminal plasma in human males is rich in

1. fructose and calcium

2. glucose and calcium

3. DNA and testosterone

4. ribose and potassium

28.

ABO blood groups in humans are controlled by the gene I. It has three alleles – I^A I^B and i. Since there are three different alleles, six different genotypes are possible. How many phenotypes can occur?

1. Three

2. One

3. Four

4. Two

29.

Breeding of crops with high levels of minerals, vitamins and proteins is called

1. somatic hybridization

2. biofortification

3. biomagnification

4. micropropagation

30.

A common biocontrol agent for the control of plant diseases is

1. Baculovirus

2. Bacillus thuringiensis

3. Glomus

4. Trichoderma

31.

Widal test is used for the diagnosis of

1. malaria

2. pneumonia

3. tuberculosis

4. typhoid

32.

Injury to adrenal cortex is not likely to affect the secretion of which one of the following?

1. Aldosterone

2. Both androstenedione and dehydroepiandrosterone

3. Adrenalin

4. Cortisol

33.

Low Ca^{2+} in the body fluid may be the cause of

1. tetany

2. anaemia

3. angina pectoris

4. gout

34.

Which one of the following pairs is incorrectly matched?

1. Glucagon- Beta cells(source)

2. Somatostatin- Delta cells(source)

3. Corpus luteum- Relaxin(secretion)

4. Insulin- Diabetes mellitus(disease)

35.

Select the correct statement from the ones given below with respect to dihybrid cross –
(1) Tightly linked genes on the same chromosome show higher recombinations
(2) Genes far apart on the same chromosome show very few recombinations
(3) Genes loosely linked on the same chromosome show similar recombinations as the tightly linked ones
(4) Tightly linked genes on the same chromosome show very few recombination

36.

Which one of the following statements regards to the excretion by the human kidneys is
correct –
(1) Descending limb of Loop of Henly is impermeable to water
(2) Distal convoluted tubule is incapable in reabsorbing HCO_3
(3) nearly 99 percent of the glomerular filtrate is reabsorbed by the renal tube
(4) Ascending limb of Loop of Henly is impermeable to electrolytes

37.

The nerve centres which control the body temperature and the urge for eating are contained in

1. hypothalamus

2. pons

3. cerebellum

4. thalamus

38.

The biomass available for consumption by the herbivores and the decomposers is called

1. net primary productivity

2. secodnary productivity

3. standing crop

4. gross primary productivity

39.

If due to some injury the chordae tendinae of the tricuspid valve of the human heart is partially non-functional, what will be the immediate effect?

1. The flow of blood into the aorta will be slowed down

2. The 'pacemaker' will stop working

3. The blood will tend to flow back into the left atrium

4. The flow of blood into the pulmonary artery will be reduced

40.

Ovary is half-inferior in the flowers of

1. guava

2. plum

3. brinjal

4. cucumber

41.

Which one of the following is used as vector for cloning genes into higher organisms?

1. Baculovirus

2. Salmonella typhimurium

3. Rhizopus nigricans

4. Retrovirus

42.

The one aspect which is not a salient feature of genetic code, is its being

1. degenerate

2. ambigous

3. universal

4. specific

43.

Which one of the following is an example of ex-situ conservation?

1. Wildlife santuary

2. Seed bank

3. Sacred groves

4. National park

44.

Which one of the following palindromic base sequences in DNA can be easily cut at about the middle by some particular restriction enzyme?

1. 5'-CGTTCG-3'
   3'-ATGGTA-5'

2. 5'-GATATG-3'
   3'-CTACTA-5'

3. 5'-GAATTC-3'
   3'-CTTAAG-5'

4. 5'-CACGTA-3'
   3'-CTCAGT-5'

45.

Which one of the following statements is correct with respect to AIDS?

1. The HIV can be transmitted through eating food together with an infected person

2. Drug addicts are least susceptible to HIV infection

3. AIDS patients are being fully cured cent per cent with proper care and nutrition

4. The causative HIV retrovirus enters helper T-lyphocytes thus reducing their numbers

46.

Phototropic curvature is the result of uneven distribution of

1. gibberellin

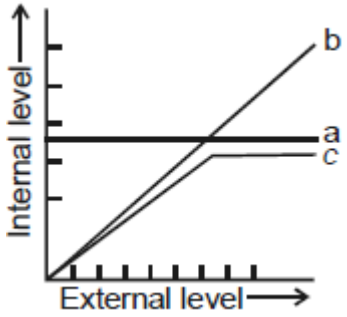
2. phytochrome

3. cytokinins

4. auxin

47.

The figure given below is a diagrammatic representation of response of organisms toabiotic factors. What do A, B and C represent respectively?



	(a)	(b)	(c)
(1)	Regulator	Conformer	Partial regulator
(2)	Conformer	Regulator	Partial regulator
(3)	Regulator	Partial regulator	Conformer
(4)	Partial regulator	Regulator	Conformer

1. (1)

2. (2)

3. (3)

4. (4)

48.

Male and female gametophytes are independent and free-living in

1. Mustard
2. Castor
3. Pinus
4. Sphagnum

49.

The technical term used for the androecium in a flower of China rose (Hibiscus rosasinensis) is

1. monadelphous
2. diadelphous
3. polyadrous
4. polyadelphous

50.

Virus envelope is known as

1. caspid
2. virion
3. nucleoprotein
4. core

51.

The permissible use of the technique amniocentesis is for

1. detecting sex of the unborn foetus
2. artificial insemination
3. transfer of enbryo into the uterus of a surrogate mother
4. detecting any genetic abnormality

52.

During mitosis ER and nucleolus begin to disappear at

1. late prophase
2. early metaphase
3. late metaphase
4. early prophase

53.

The free-living, anaerobic nitrogen-fixer is

1. Beijerinckia
2. Rhodospirillum
3. Rhizobium
4. Azotobacter

54.

DNA or RNA segment tagged with a radioactive molecule is called

1. vector
2. probe
3. clone
4. plasmid

55.

Darwin's finches are a good example of

1. industrial melanism
2. connecting link
3. adaptive radiation
4. convergent evolution

56.

The signals for parturition originate from

1. placenta only
2. placenta as well as developed foetus
3. oxytocin released from maternal pituitary
4. fully developed foetus only

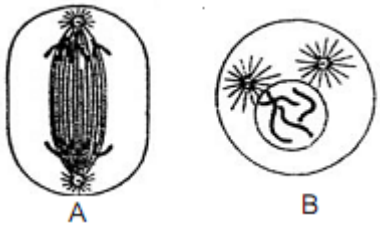
57.

What is true about RBCs in humans?

1. they carry about 20-25 per cent ofCO_2
2. They transport 99.5 per cent of O_2
3. They transport about 80 per cent oxygen only and the rest 20 per cent of it is transported in dissolved state in blood plasma
4. They do not carry CO_2 at all

58.

Which stages of cell division do the following figures A and B represent respectively?



1. Metaphase- telophase

2. Telophase- Metaphase

3. Late anaphase- Prophase

4. Prophase- Anaphase

59.

The main arena of variuos types of activites of a cell is –
(1) Plasma membrane
(2) Mitochondrian
(3) Cytoplasm
(4) Nucleus

60.

The common nitrogen-fixer in paddy fields is

1. Rhizobium

2. Azospirillum

3. Oscillatoria

4. Frankia

61.

The principal nitrogenous excretory compound in humans is synthesised

1. in kidneys but eliminated mostly through liver

2. in kidneys as well as eliminated by kidneys

3. in liver and also eliminated by the same through bile

4. in the liver, but eliminated mostly through kidneys

62.

Carrier ions like Na+ facilitate the absorption of substance like

1. amino acids and glucose

2. glocose and fatty acids

3. fatty acids and glycerol

4. fructose and some amino acids

63.

Which one of the following symbols and its representation, used in human pedigree analysis is correct?

1.  = Meting between relatives

2.  = Unaffected female

3.  = Unaffected male

4.  = male affected

64.

Which two of the following changes (a – d) usualy tend to occur in the plain dwellers when they move to high altitudes (3,500 m or more) ?
(a) Increase in red blood cell size
(b) Increase in red blood cell production
(c) Increased breathing rate
(d) Incrase in thrombocyte count
Changes occurring are –
(1) (b) and (c)
(2) (c) and (d)
(3) (a) and (d)
(4) (a) and (b)

65.

Toxic agents present in food which interfere with thyroxin synthesis lead to the development of

1. toxic goitre

2. cretinism

3. simple goitre

4. throtoxicosis

66.

If for some reason our goblet cells are non-functional, this will adversely affect

1. production of somatostatin

2. secretion of sebum from the sebaceous glands

3. maturation of sperms

4. smooth movement of food down the intestine

67.

The plasma membrane consists mainly of

1. phospholipids embedded in a protein bilayer

2. proteins embedded in a phospholipid bilayer

3. proteins embedded in a polymer of glucose molecules

4. proteins embedded in a carbohydrate bilayer

68.

Which one of the following statements about all the four of Spongilla, leech, dolphin and penguin is correct?

1. Penguin is homoiothermic while remaining three are poikilothermic

2. Leech is a fresh water form while others are marine

3. Songilla has special collared cells called choanocytes, not found in the remaining three

4. All are bilaterally symmetrical

69.

The first movements of the foetus and appearance of hair on its head are usually observed during which month of pregnancy?

1. Fourth month

2. Fifth month

3. Sixth month

4. Third month

70.

The scutellum observed in a grain of wheat or maize is comparable to which part of the seed in other monocotyledons?

1. Cotyledon

2. Endosperm

3. Aleurone layer

4. Plumule

71.

Which one of the following kinds of animals are triploblastic?

1. Flat worms

2. Sponges

3. Ctenophores

4. Corals

72.

Which one of the following statements about certain given animals is correct?

1. Roundworms(Achelminthes) are pseudocoelomates

2. Molluscs are acoelomates

3. Insects are pseudocoelomates

4. Flat worms (Platyhelminthes) are coelomates

73.

Copper ions released from copper-releasing Intra Uterine Devices (IUDs)

1. make uterus unsuitable for implantation

2. increase phagocytosis of sperms

3. suppress sperm motility

4. prevent ovulation

74.

The energy-releasing metabolic process in which substrate is oxidized without an external electron acceptor is called

1. glycolusis

2. fermentation

3. aerobic respiration

4. photorespiration

75.

Restriction endonucleases are enzymes which

1. make cuts at specific positions within the DNA molecule

2. recognize a specific nucleotide sequence for binding of DNA ligase

3. restrict the action of the enzyme DNA polymerase

4. remove nucleotides from the ends of the DNA molecule

76.

Which one of the following is not a lateral meristem?

1. Intrafascicular cambium

2. Interfascicular cambium

3. Phellogen

4. Intercalary meristem

77.

A renewable exhaustible natural resource is

1. coal

2. petroleum

3. minerals

4. forest

78.

Photoperiodism was first characterized in

1. tobacco

2. potato

3. tomato

4. cotton

79.

C_4-plants are more efficient in photosynthesis than C_3-plants due to

1. higher leaf area

2. presence of larger number of chloroplasts in the leaf cells

3. presence of thin cuticle

4. lower rate of photorespiration

80.

Alage have cell wall made up of –
(1) Cellulose, galactans and mannans
(2) Hemicellulose, pectins and proteins
(3) Pectins, cellulose and proteins
(4) Cellulose, hemicellulose and pectins

81.

Some hyperthermophilic organisms that grow in highly acidic (pH 2) habitats belong to the two groups called

1. eubacteria snd archaea

2. cyanobateria and diatoms

3. protists and mosses

4. liverworts and yeasts

82.

Genetic engineering has been successfully used for producing –
(1) transgenic mice for testing safety of polio vaccine before use in humans
(2) transgenic models for studying new treatments for certain cardiac disease
(3) transgenic Cow-Rosie which produces high fat milk for making ghee
(4) Animals like bulls for farm work as they have super power

83.

Some of the characteristics of Bt cotton are

1. long fibre and resistance to aphids

2. medium yield, log fibre and resistance to beetle pests

3. high yield and production of toxic protein crystals which kill dipteran pests

4. high yield and resistance to bollworms

84.

Heartwood differs from sapwood in

1. presence of rays and fibres

2. absence of vessels and parenchyma

3. having dead and non-conducting elements

4. being susceptible to pests and pathogens

85.

Satellite DNA is useful tool in –
(1) Organ transplantation
(2) Sex determination
(3) Forensic science
(4) Genetic engineering

86.

The second maturation division of the mammalian ovum occurs

1. Shortly after ovulation before the ovum makes entry into the Fallopian tube

2. until after the ovum has been penetrated by a sperm

3. until the nucleus of the sperm has fused with that of the ovum

4. in the Graafian follicle following the first maturation division

87.

Which one of the following does not follow the central dogma of molecular biology?

1. Pea

2. Mucor

3. Chlamydomonas

4. HIV

88.

Which one of the following statements about human sperm is correct?

1. Acrosome has a conial pointed structure used for piercing and penetrating the egg, resulting in fertilization

2. The sperm lysins in the acrosome dissolve the egg envelop facilitating fertilization

3. Acrosome serves as a sensory structure leading the sperm towards the ovum

4. Acrosome serves no particular function

89.

Consider the following four statements (a–d) regarding kidney transplant and select the two correct ones out of these –
(a) Even if a kidney transplant is proper the recipient may need to take immunosuppresants for a long time
(b) The cell-mediated immune response is responsible for the graft rejection
(c) The B-lymphocytes are responsible for rejection of the graft
(d) The acceptance or rejection of a kidney transplant depends on specific interferons
The two correct statements are –
(1) (b) and (c)
(2) (c) and (d)
(3) (a) and (c)
(4) (a) and (b)

90.

Wind pollinated flowers are –
(1) small, brightly coloured, producing large number of pollen grains
(2) small, proudcing large number of dry pollen grains
(3) large producing abundant nectar and pollen
(4) small, producing nectar and dry pollen

91.

dB is a standard abbreviation used for the quantitative expression of

1. the density of bacteria in a medium

2. a particular pollutant

3. the dominant Bacillus in a culture

4. a certain pesticide

92.

Which one of the following is one of the characteristics of a biological community?

1. Stratification

2. Natality

3. Mortality

4. Sex-ratio

93.

Which one of the following statements about morula in humans is correct –
(1) It has almost equal quantity of cytoplasm as an uncleaved zygote but much more DNA
(2) It has far less cytoplasm as well as less DNA than in an uncleaved zygote
(3) It has more or less equal quantity of cytoplasm and DNA as in uncleaved zygote
(4) It has more cytoplasm and more DNA than an uncleaved zygote

94.

Coiling of garden pea tendrils around any support is an example of

1. thigmotaxis

2. thigmonasty

3. thigmotropism

4. thermotaxis

95.

The two gases making highest relative contribution to the greenhouse gases are

1. CO_2 and CH_4

2. CH_4 and NO_2

3. CFCs and N_2O

4. CO_2 and N_2O

96.

Which one of the following is not used in organic farming?

1. Glomus

2. Earthworm

3. Oscillatoria

4. Snail

97.

Stirred-tank bioreactors have been designed for –
(1) Addition of preservatives to the product
(2) Purification of the product
(3) Ensuring anaerobic conditions in the culture vessel
(4) Availability of oxygen throughout the process

98.

An improved variety of transgenic basmati rice

1. does not require chemical fertilizers and growth hormones

2. gives hiogh yield and is rich in vitamin-A

3. is completely resistant to all insect pests and diseases of paddy

4. gives high yield but has no characteristic aroma

99.

Infectious proteins are present in

1. geminiviruses

2. prions

3. viroids

4. satellite viruses

100.

The part of Fallopian tube closest to the ovary is
(1) Isthmus
(2) Infundibulum
(3) Cervix
(4) Ampulla

101.

For the reaction,
$N_2O_5(g) \rightarrow 2\,NO_2(g) + \frac{1}{2}O_2(g)$
the value of rate of disappearance of $N_2O_5$is given as 6.25×10^{-3}mol $L^{-1}s^{-1}$.The rate of formation of NO_2 and O_2 is given respectively as

1. 6.25×10^{-3}mol $L^{-1}s^{-1}$ and 6.25×10^{-3}mol $L^{-1}s^{-1}$.

2. 1.25×10^{-2}mol $L^{-1}s^{-1}$ and 3.125×10^{-3}mol $L^{-1}s^{-1}$.

3. 6.25×10^{-3}mol $L^{-1}s^{-1}$ and 3.125×10^{-3}mol $L^{-1}s^{-1}$.

4. 1.25×10^{-2}mol $L^{-1}s^{-1}$ and 6.25×10^{-3}mol $L^{-1}s^{-1}$.

102.

Liquid hydrocarbons can be converted to a mixture of gaseous hydrocarbons by

1. oxidation

2. cracking

3. distillation under reduced pressure

4. hydrolysis

103.

In which of the following pairs of molecules/ions, the central atoms have sp^2hybridization ?

1. NO_2^- and NH_3

2. BF_3 and NO_2^-

3. $NH_2^-$and H_2O

4. BF_3 and NH_2^-

104.

Which one of the following does not exhibit the phenomenon of mutarotation?

1. (+) Sucrose

2. (+) Lactose

3. (+) Maltose=

4. (-) Fructose

105.

Which one of the following species does not exist under normal conditions ?

1. Be_2^+

2. Be_2

3. B_2

4. Li_2

106.

Which of the following complex ions is not expected to absorb visible light ?

1. $[Ni(CN)_4]^{2+}$

2. $[Cr(NH_3)_6]^{3+}$

3. $[Fe(H_2O)_6]^{2+}$

4. $[Ni(H_2O)_6]^{2+}$

107.

Given are cyclohexanol (I), acetic acid (II), 2, 4, 6-trinitrophenol (III) and phenol (IV). In these, the order of decreasing acidic character will be

1. III>II>IV>I

2. II>III>I>IV

3. II>III>IV>I

4. III>IV>II>I

108.

If pH of a saturated solution of $Ba(OH)_2$ is 12, the value of its K_{sp} is

1. $4.00 \times 10^{-6}\ M^3$

2. $4.00 \times 10^{-7}\ M^3$

3. $5.00 \times 10^{-6}\ M^3$

4. $5.00 \times 10^{-7}\ M^3$

109.

The reaction of toluene with Cl_2 in presence of $FeCl_3$ gives ‘X' and reaction in presence of light gives 'Y'. Thus, X' and 'Y' are

1. X= Benzal chloride, Y= o-chlorotoluene

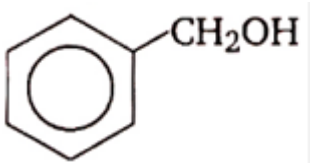
2. X= m-chlorotoluene, Y= p-chlorotoluene

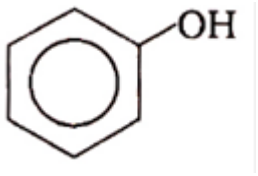
3. X= o and p-chlorotoluene, Y= trichloromethyl bezene

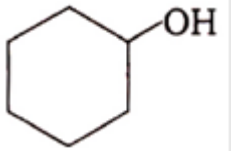
4. X= Benzyl chloride, Y= m-chlorotoluene

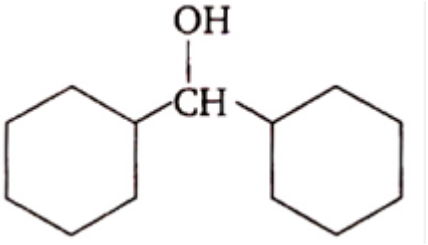
110.

Which one of the following compounds has the most acidic nature?

1. 

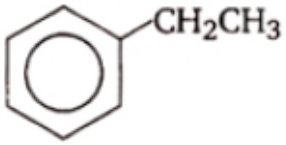
2. 

3. 

4. 

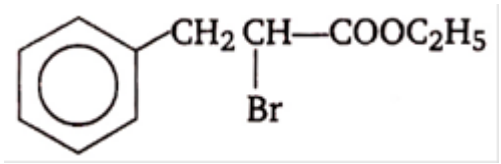
111.

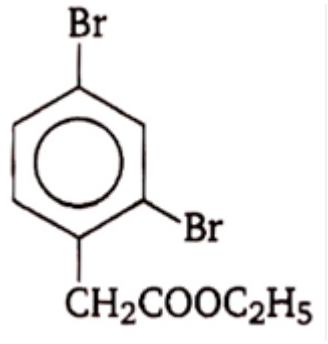
In a set of reactions, ethyl benzene yielded a product D

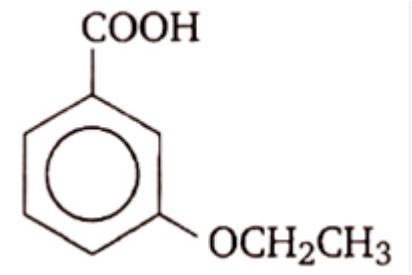


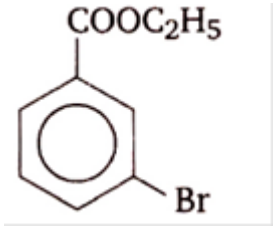
$\xrightarrow[KOH]{KMnO_4}$ B $\xrightarrow[FeCl_3]{Br_2}$ C $\xrightarrow[H^+]{C_2H_5OH}$ D

'D' would be

1. 

2. 

3. 

4. 

112.

What is $[H^+]$ in mol/L of a solution that is 0.20 M in CH_3COONa and 0.10 M in CH_3COOH ?(K a for $CH_3COOH = 1.8 \times 10^{-5}$)

1. 3.5×10^{-4}
2. 1.1×10^{-5}
3. 1.8×10^{-5}
4. 9.0×10^{-6}

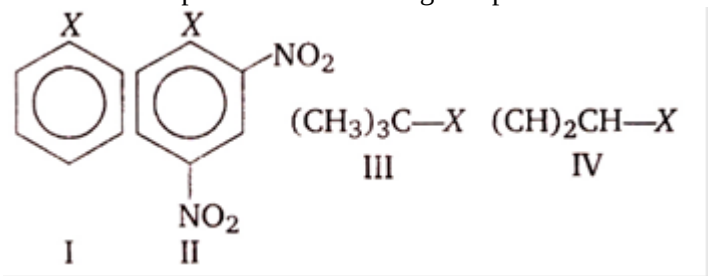
113.

For an endothermic reaction, the energy of activation is E_a, and the enthalpy of reaction is ΔH (both of these in kJ/mol). The minimum value of E_a. will be

1. less than ΔH
2. equal to ΔH
3. more than ΔH
4. equal to zero

114.

The correct order of increasing reactivity of C-X bond towards nucleophile in the following compounds is



1. I<II<IV<III
2. II<III<I<IV
3. IV<III<I<II
4. III<II<I<IV

115.

For the reduction of silver ions with copper metal, the standard cell potential was found to be + 0.46 V a t 25 °C. The value of standard Gibbs energy, ΔG^o will be (F = 96500C mol^{-1})

1. -89.0 kJ
2. -89.0 J
3. -44.5 kJ
4. -98.0 kJ

116.

In which of the following equilibrium K_c and K_p are not equal?

1. $2NO(g) \rightleftharpoons N_2(g) + O_2(g)$

2. $SO_2(g) + NO_2(g) \rightleftharpoons SO_3(g) + NO(g)$

3. $H_2(g) + I_2(g) \rightleftharpoons 2HI(g)$

4. $2C(s) + O_2(g) \rightleftharpoons 2CO_2(g)$

117.

Which of the following ions will exhibit colour in aqueous solutions?

1. La^{3+} (Z=57)

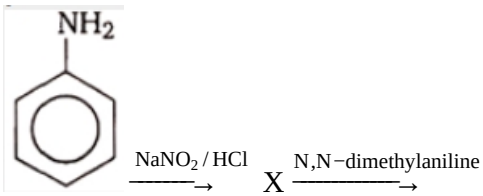
2. Ti^{3+} (Z=22)

3. Lu^{3+} (Z=71)

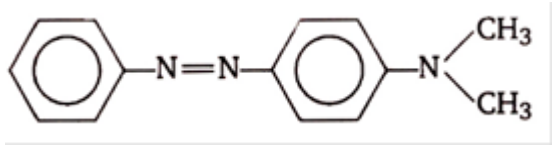
4. Sc^{3+} (Z=21)

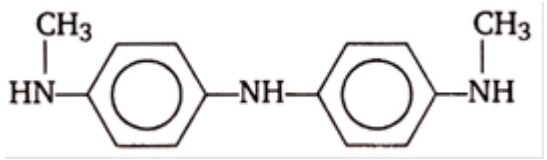
118.

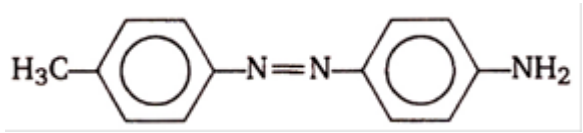
Aniline in a set of the following reactions yielded a coloured product 'Y'.

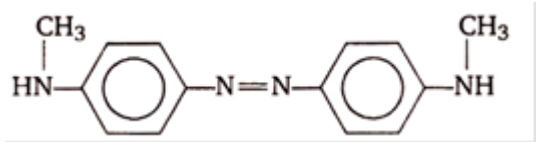


The structure of 'Y' would be

1. 

2. 

3. 

4. 

119.

Acetamide is treated with the following reagents separately. Which one of these wouldyield methyl amine?

1. NaOH-Br_2

2. Sodalime

3. Hot cone H_2SO_4

4. PCl_5

120.

An aqueous solution is 1.00 molal in KI. Which change will cause the vapour pressure of the solution to increase?

1. Addition of NaCl

2. Addition of Na_2SO_4

3. Addition of 1.00 molal Kl

4. Addition of water

121.

A solution of sucrose(molar mass = 342g mol^{-1}) has been prepared by dissolving 68.5 g of sucrose in 1000 g of water. The freezing point of the solution obtained will be (k_f for water= 1.86 K kg mol^{-1})

1. -0.372 ^oC

2. -0.520 ^oC

3. +0.372 ^oC

4. -0.570 ^oC

122.

Which of the following alkaline earth metal sulphates has hydration enthalpy higher than the lattice enthalpy?

1. $CaSO_4$

2. $BeSO_4$

3. $BaSO_4$

4. $SrSO_4$

123.

Which one of the following ions has electronic configuration [Ar] $3d^6$?
(At. no :Mn = 25, Fe= 26, Co= 27, Ni = 28)

1. Ni^{3+}

2. Mn^{3+}

3. Fe^{3+}

4. Co^{3+}

124.

An increase in equivalent conductance of a strong electrolyte with dilution is mainly due to

1. increase in ionic mobility of ions

2. 100% ionization of electrolyte at normal dilution

3. increase in both, i.e, number of ions and ionic mobility of ions

4. increase in the number of ions

125.

Crystal field stabilization energy for high spin d^4 octahedral complex is

1. -1.8 Δ_0

2. -1.6 Δ_0+P

3. -1.2 Δ_0

4. -0.6 Δ_0

126.

Oxidation states of P in $H_4P_2O_5$, $H_4P_2O_6$, $H_4P_2O_7$, are respectively

1. +3, +5, +4

2. +5, +3, +4

3. +5, +4, +3

4. +3, +4, +5

127.

Which of the following statements about primary amines is false?

1. Alkyl amines are stronger bases than aryl amines

2. Alkyl amines react with, nitrous acid to produce alcohols

3. Aryl amines react with nitrous acid to produce phenols

4. Alkyl amines are stronger bases than ammonia

128.

The correct order of increasing bond angles in the following species is

1. $Cl_2O < ClO_2 < ClO_2^-$

2. $ClO_2 < Cl_2O < ClO_2^-$

3. $Cl_2O < ClO_2 < ClO_2$

4. $ClO_2^- < Cl_2O < ClO_2$

129.

Among the given compounds, the most susceptible to nucleophilic attack at the carbonyl group is

1. CH_3COOCH_3

2. CH_3CONH_2

3. $CH_3COOCOCH_3$

4. CH_3COCl

130.

25.3g of sodium carbonate, Na_2CO_3 is dissolved in enough water to make 250 mL of solution. If sodium carbonate dissociates completely, molar concentration of sodium ion, Na^+ and carbonate ion, CO_3^{2-} are respectively (molar mass of Na_2CO_3 = 106g mol^{-1})

1. 0.955 M and 1.910 M
2. 1.910 M and 0.955 M
3. 1.90 M and 1.910 M
4. 0.477 M and 0.477 M

131.

Ina buffer solution containing equal concentration of B^- and HB, the K_b for B^- is 10^{-10}. The pH of buffer solution is

1. 10
2. 7
3. 6
4. 4

132.

The existence of two different coloured complexes with the composition of $[Co(NH_3)_4Cl_2]^+$is due to

1. linkage isomerism
2. geometrical isomerism
3. coordination isomerism
4. ionisation isomerism

133.

Property of the alkaline earth metals that increases with their atomic number

1. Solubility of their hydroxides in water
2. Solubility of their sulphates in water
3. Ionization Energy
4. Electro-negativity

134.

During the kinetic study of the reaction, $2A + B \rightarrow C + D$, following results were obtained

Run	[A)/ mol L^{-1}	[B)/ mol L^{-1}	Initial rate of formation of D/mol L^{-1}
I	0.1	0.1	6.0×10^3
II	0.3	0.2	7.2×10^2
III	0.3	0.4	2.88×10^{-1}
IV	0.4	0.1	2.40×10^{-2}

Based on the above data which one of the following is correct?

1. rate= $k[A]^2[B]$
2. rate= $k[A][B]$
3. rate= $k[A]^2[B]^2$
4. rate= $k[A][B]^2$

135.

Which of the following pairs has the same size?

1. Fe^{2+}, Ni^{2+}
2. Zr^{4+}, Ti^{4+}
3. Zr^{4+}, Hf^{4+}
4. Zn^{2+}, Hf^{4+}

136.

The correct order of the decreasing ionic radii among the following isoelectronic species is

1. $Ca^{2+} > K^+ > S^{2-} > Cl^-$
2. $Cl^- > S^{2-} > Ca^{2+} > K^+$
3. $S^{2-} > Cl^- > K^+ > Ca^{2+}$
4. $K^+ > Ca^{2+} > Cl^- > S^{2-}$

137.

In which one of the following species the central atom has the type of hybridization which is not the same as that present in the other three ?

1. SF_4

2. I_3^-

3. $SbCl_5^{2-}$

4. PCl_5

138.

Standard entropies of X_2, Y_2 and XY_3 are 60, 40 and $50 JK^{-1}mol^{-1}$ respectively. For the reaction

$$\frac{1}{2}X_2 + \frac{3}{2}Y_2 \rightleftharpoons XY_3; \Delta H = -30 kJ$$

to be at equilibrium, the temperature should be

1. 750 K

2. 1000 K

3. 1250 K

4. 500 K

139.

Which of the following represents the correct order of increasing Electron Affinity for the elements, O, S, F and Cl ?

1. Cl<F<O<S

2. O<S<F<Cl

3. F<S<O<Cl

4. S<O<Cl<F

140.

Which one of the following compounds is a peroxide?

1. KO_2

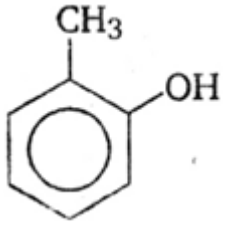
2. BaO_2

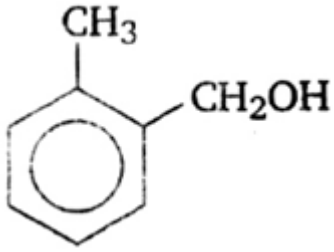
3. MnO_2

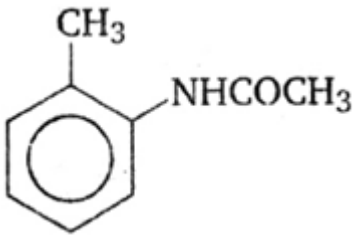
4. NO_2

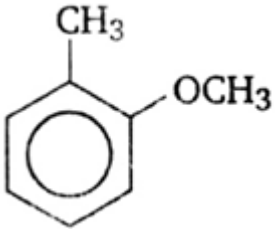
141.

Which one is most reactive towards electrophilic reagent?

1. 

2. 

3. 

4. 

142.

Which one of the following is employed as a tranquilizer drug?

1. Promethazine

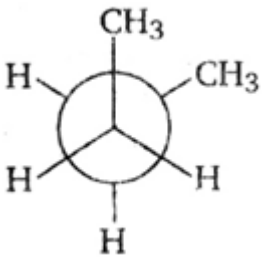
2. Valium

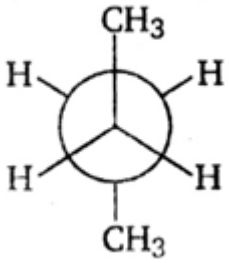
3. Naproxen

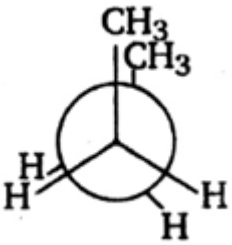
4. Mifepristone

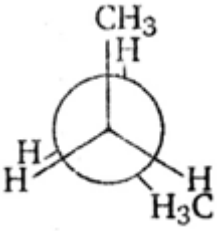
143.

In the following the most stable conformation of n-butane is

1. 

2. 

3. 

4. 

144.

Which of the following reactions will not result in the formation of carbon-carbon bonds?

1. Reimer-Tiemann reaction
2. Cannizaro reaction
3. Wurtz reaction
4. Friedel-Crafts acylation

145.

Which of the following structures represents neoprene polymer?

1. $\left(-CH_2 - \underset{\underset{Cl}{|}}{C} = CH - CH_2 - \right)_n$
2. $\left(CH_2 - \underset{\underset{CN}{|}}{CH} - \right)_n$
3. $\left(-CH_2 - \underset{\underset{Cl}{|}}{CH} - \right)_n$
4. $\left(-\underset{\underset{C_6H_5}{|}}{CH} - CH_2 - \right)_n$

146.

Which one is most reactive towards S_N1 reaction?

1. $C_6H_5CH(C_6H_5)Br$
2. $C_6H_5CH(CH_3)Br$
3. $C_6H_5C(CH_3)(C_6H_5)Br$
4. $C_6H_5CH_2Br$

147.

AB crystallizes in a body-centered cubic lattice with edge length 'a' equal to 387 pm. The distance between two oppositely charged ions in the lattice is

1. 335 pm
2. 250 pm
3. 200 pm
4. 300 pm

148.

The number of atoms in 0.1 mole of a triatomic gas is (N_A= 6.02 x 10^{23} mol^{-1})

1. 6.026×10^{22}
2. 1.806×10^{23}
3. 3.600×10^{23}
4. 1.800×10^{22}

149.

Which one of the following molecular hydrides acts as a Lewis acid ?

1. NH_3

2. H_2O

3. B_2H_6

4. CH_4

150.

The tendency of BF_3, BCl_3 and BBr_3 to behave as Lewis acid decreases in the sequence

1. $BCl_3 > BF_3 > BBr_3$

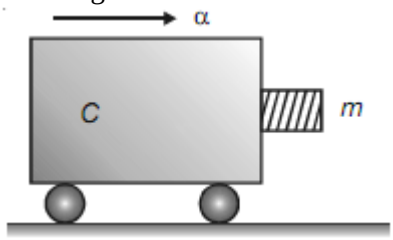
2. $BBr_3 > BCl_3 > BF_3$

3. $BBr_3 > BF_3 > BCl_3$

4. $BF_3 > BCl_3 > BBr_3$

151.

A block of mass m is in contact with the cart C as shown in the figure.



The coefficient of static friction between the block and the cart is μ. The acceleration α of the cart that will prevent the block from falling satisfies:

1. $\alpha > \frac{mg}{\mu}$

2. $\alpha > \frac{g}{\mu m}$

3. $\alpha \geq \frac{g}{\mu}$

4. $\alpha < \frac{g}{\mu}$

152.

The mass of a $^{7}_{3}Li$ nucleus is 0.042u less than the sum of the masses of all its nucleons. The binding energy per nucleon of the $^{7}_{3}Li$ nucleus is near:

1. 4.6 MeV

2. 5.6 MeV

3. 3.9 MeV

4. 23 MeV

153.

A circular disk of moment of inertia I_t is rotating in a horizontal plane, about its symmetry axis, with a constant angular speed ω_i. Another disk of moment of inertia I_b is dropped coaxially onto the rotating disk. Initially, the second disk has zero angular speed. Eventually, both the disks rotate with a constant angular speed w_f. The energy lost by the initially rotating disc due to friction is:

1. $\frac{1}{2}\frac{I_b^2}{(I_t+I_b)}\omega_i^2$

2. $\frac{1}{2}\frac{I_t^2}{(I_t+I_b)}\omega_i^2$

3. $\frac{1}{2}\frac{I_b-I_t}{(I_t+I_b)}\omega_i^2$

4. $\frac{1}{2}\frac{I_bI_t}{(I_t+I_b)}\omega_i^2$

154.

Which one of the following statements is false?

1. Pure Si doped with trivalent impurities gives a p-type semiconductor.

2. The majority carriers in an n-type semiconductor are holes.

3. The minority carriers in a p-type semiconductor are electrons.

4. The resistance of intrinsic semiconductor decreases with an increase in temperature.of

155.

The displacement of a particle along the x-axis is given by $x = a\sin^2\omega t$. The motion of the particle corresponds to:

1. Simple harmonic motion of frequency $\frac{\omega}{\pi}$

2. Simple harmonic motion of frequency $\frac{3\omega}{2\pi}$

3. non-simple harmonic motion

4. simple harmonic motion of frequency $\frac{\omega}{2\pi}$

156.

The radii of circular orbits of two satellites A and B of the earth are 4R and R respectively. If the speed of satellite A is 3v, then the speed of satellite B will be:

1. 3v/4

2. 6v

3. 12v

4. 3v/2

157.

A beam of cathode rays is subjected to cross Electric (E) and magnetic fields(B). The fields are adjusted such that the beam is not deflected. The specific charge of the cathode rays is given by

(a) $\frac{B^2}{2V E^2}$ (b) $\frac{2V B^2}{E^2}$

(c) $\frac{2V E^2}{B^2}$ (d) $\frac{E^2}{2V B^2}$

(where V is the potential difference between cathode and anode)

158.

A ball is dropped from a high rise platform at t = 0 starting from rest. After 6 seconds another ball is thrown downwards from the same platform with a speed v. The two balls meet at t = 18 s. What is the value of v?

1. 75 ms^{-1}

2. 55 ms^{-1}

3. 40 ms^{-1}

4. 60 ms^{-2}

159.

A ray of light traveling in a transparent medium of refractive index μ falls on a surface separating the medium from the air at an angle of incidence of 45 °. For which of the following value of μ the ray can undergo total internal reflection?

1. μ = 1. 33

2. μ = 1. 40

3. μ = 1. 50

4. μ = 1. 25

160.

The period of oscillation of a mass M suspended from a spring of negligible mass is T. If along with it another mass M is also suspended, the period of oscillation will now be:

1. T

2. $T/\sqrt{2}$

3. 2T

4. $\sqrt{2}T$

161.

A cylindrical metallic rod in thermal contact with two reservoirs of heat at its two ends conducts an amount of heat Q in time t. The metallic rod is melted and the material is formed into a rod of half the radius of the original rod. What is the amount of heat conducted by the new rod when placed in thermal contact with the two reservoirs in the same time?

1. Q /4

2. Q/16

3. 2Q

4. Q/2

162.

A ball moving with velocity 2 ms^{-1} collides head-on with another stationary ball of double the mass. If the coefficient of restitution is 0.5, then their velocities (in ms^{-1}) after the collision will be

1. 0, 1

2. 1, 1

3. 1, 0.5

4. 0, 2

163.

A transverse wave is represented by y = Asin(ωt -kx). For what value of the wavelength is the wave velocity equal to the maximum particle velocity?

1. πA/2

2. πA

3. 2πA

4. A

164.

A particle has initial velocity $(3\hat{i} + 4\hat{j})$ and has acceleration $(0.4\hat{i} + 0.3\hat{j})$. Its speed after 10 s is

1. 7 units

2. $7\sqrt{2}$units

3. 8.5 units

4. 10 units

165.

An engine pumps water through a hose pipe. Water passes through the pipe and leaves it with a velocity of 2 ms^{-1} The mass per unit length of water in the pipe is 100 kg m^{-1}.What is the power of the engine?

1. 400 W

2. 200 W

3. 100 W

4. 800 W

166.

A thin ring of radius R metre has charge q coulomb uniformly spread on it. The ring rotates about its axis with a constant frequency of f revolution/s.The value of magnetic induction in Wb m^{-2} at the centre of the ring is

(a) $\frac{\mu_0 qf}{2\pi R}$ (b) $\frac{\mu_0 q}{2\pi f R}$

(c) $\frac{\mu_0 q}{2f R}$ (d) $\frac{\mu_0 qf}{2R}$

167.

Which one of the following bonds produces a solid that reflects light in the visible region and whose electrical conductivity decreases with temperature and has a high melting point?

1. metallic bonding

2. van der Waals' bonding

3. ionic bonding

4. covalent bonding

168.

A particle moves a distance x in time t according to equation $X = (t + 5)^{-1}$ The acceleration of particle is proportional to

1. $(\text{velocity})^{3/2}$

2. $(\text{distance})^2$

3. $(\text{distance})^{-2}$

4. $(\text{velocity})^{2/3}$

169.

A conducting circular loop is placed in a uniform magnetic field, B = 0.025 T with its plane perpendicular to the loop. The radius of the loop is made to shrink at a constant rate of 1 mms^{-1}. The induced emf when the radius is 2cm is:

1. $2\pi\mu V$

2. $\pi\mu V$

3. $\frac{\pi}{2}\mu V$

4. $2\mu V$

170.

The activity of a radioactive sample is measured as N_0 counts per minute at t = 0 and N_0/e counts per minute at t = 5 min. The time (in minute) at which the activity reduces to half its value is:

1. $\log_e(\frac{2}{5})$

2. $\frac{5}{\log_e(2)}$

3. $5 \log_{10} 2$

4. $5 \log_e 2$

171.

Two particles which are initially at rest, move towards each other under the action of their mutual attraction. If their speeds are v and 2 v at any instant, then the speed of centre of mass of the system will be:

1. 2v

2. 0

3. 1.5v

4. v

172.

A particle of mass M is situated at the centre of a spherical shell of same mass and radius a. The gravitational potential at a point situated at a / 2 distance from the centre, will be:

1. $-\frac{3GM}{a}$

2. $-\frac{2GM}{a}$

3. $-\frac{GM}{a}$

4. $-\frac{4GM}{a}$

173.

The device that can act as a complete electronic circuit is:

1. Junction diode

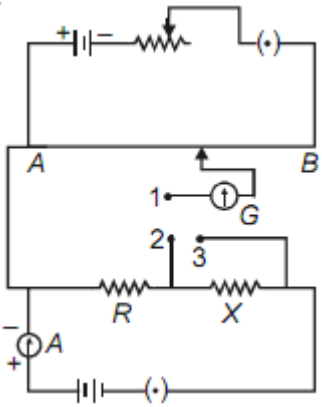
2. Integrated circuit

3. Junction transistor

4. Zener diode

174.

A potentiometer circuit is set up as shown. The potential gradient across the potentiometer wire is k volt/cm and the ammeter, present in the circuit, reads 1.0 A when the two-way key is switched off. The balance points, when the key between the terminals (i) 1 and 2 (ii) 1 and 3, is plugged in, are found to be at lengths l_1 cm and l_2 cm respectively. The magnitudes, of the resistors R and X, in ohm, are then, equal, respectively, to



1. $k(l_2 - l_1)$ and kl_2

2. kl_1 and $k(l_2 - l_1)$

3. $k(l_2 - l_1)$ and kl_1

4. kl_1 and kl_2

175.

A tuning fork of frequency 512 Hz makes 4 beats/s with the vibrating string of a piano. The beat frequency decreases to 2 beats/s when the tension in the piano string is slightly increased. The frequency of the piano string before increasing the tension was:

1. 510 Hz

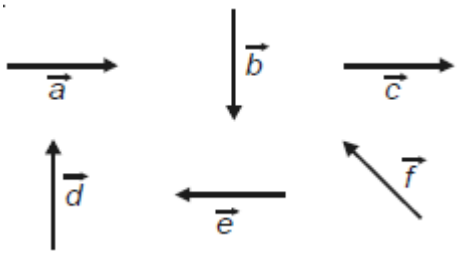
2. 514 Hz

3. 516 Hz

4. 508 Hz

176.

Six vectors $\vec{a}$ through $\vec{f}$ have the magnitudes and directions indicated in the figure. Which of the following statements true?



1. $\vec{b} + \vec{c} = \vec{f}$

2. $\vec{d} + \vec{c} = \vec{f}$

3. $\vec{d} + \vec{e} = \vec{f}$

4. $\vec{b} + \vec{e} = \vec{f}$

177.

A galvanometer has a coil of resistance 100 Ω and gives a full-scale deflection for 30 mA current. If it is to work as a voltmeter of 30 V range, the resistance required to be added will be:

1. 900 Ω

2. 1800 Ω

3. 500 Ω

4. 1000 Ω

178.

A gramophone record is revolving with an angular velocity ω. A coin is placed at a distance r from the centre of the record. The static coefficient of friction is μ. The coin will revolve with the record if:

1. $r = \mu g\omega^2$

2. $r < \frac{\omega^2}{\mu g}$

3. $r \leq \frac{\mu g}{\omega^2}$

4. $r \geq \frac{\mu g}{\omega^2}$

179.

Which of the following statement is false for the properties of electromagnetic waves?

1. Both electric and magnetic field vectors attain the maxima and minima at the same place and same time.

2. The energy in the electromagnetic wave is divided equally between electric and magnetic vectors.

3. Both electric and magnetic field vectors are parallel to each other and perpendicular to the direction of propagation of the wave.

4. These waves do not require any material medium for propagation.

180.

The energy of a hydrogen atom in the ground state is -13.6eV. The energy of a He^+ ion in the first excited state will be-

1. -13.6 eV

2. -27.2 eV

3. -54.4 eV

4. -6.8 eV

181.

The dimensions of $\frac{1}{2}\varepsilon_0 E^2$ where ε_0 is the permittivity of free space and E is the electric field, are:

1. $[ML^2T^{-2}]$

2. $[ML^{-1}T^{-2}]$

3. $[ML^2T^{-1}]$

4. $[MLT^{-1}]$

182.

In producing chlorine by electrolysis 100 kW power a t 125 V is being consumed. How much chlorine per minute is liberated (ECE of chlorine is 0.367 X 10-6 kgC^{-1})

1.1. 76×10^{-3} kg

2. 9.67×10^{-3} kg

3. 17.61×10^{-3} kg

4. 3.67×10^{-3} kg

183.

A man of 50 kg mass is standing in a gravity free space at a height of l0m above the floor. He throws a stone of 0.5 kg mass downwards with a speed $2ms^{-1}$. When the stone reaches the floor, the distance of the man above the floor will be

1. 9.9m

2. 10.1m

3. 10m

4. 20m

184.

An alpha nucleus of energy $\frac{1}{2}mv^2$ bombards a heavy nuclear target of charge Ze. Then the distance of closest approach for the alpha nucleus will be proportional to:

1. $\frac{1}{Ze}$

2. v^2

3. $\frac{1}{m}$

4. $\frac{1}{v^4}$

185.

A lens having focal length f and aperture of diameter d forms an image of intensity I . Aperture of diameter $\frac{d}{2}$ in central region of lens is covered by a black paper. The focal length of lens and intensity of image now will be respectively :

1. f and $\frac{1}{4}$

2. $\frac{3f}{4}$ and $\frac{I}{2}$

3. f and $\frac{3I}{4}$

4. $\frac{f}{2}$ and $\frac{I}{2}$

186.

If ΔU and ΔW represent the increase in internal energy and work done by the system respectively in a thermodynamical process. Which of the following is true?

1. $\Delta U=-\Delta W$, in an adiabatic process

2. $\Delta U=\Delta W$, in an isothermal process

3. $\Delta U = \Delta W$, in an adiabatic process

4. $\Delta U=-\Delta W$, in an isothermal process

187.

The total radiant energy per unit area, normal to the direction of incidence, received at a distance R from the centre of a star of radius r, whose outer surface radiates as a black body at a temperature T K is given by:
(Where σ is Stefan's constant)

1. $\sigma r^2 T^4/R^2$

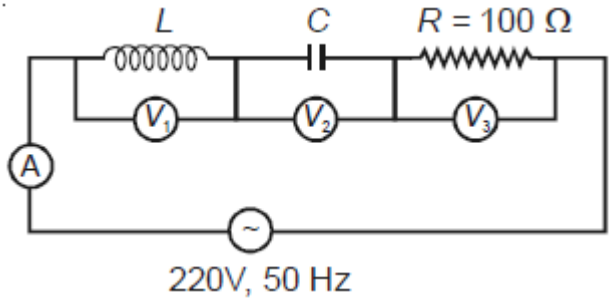
2. $\sigma r^2 T^4/4\pi R^2$

3. $\sigma r^2 T^4/R^4$

4. $4\pi\sigma r^2 T^4/R^2$

188.

In the given circuit the reading of voltmeter V_1 and V_2 are 300 V each. The reading of the voltmeter V_3 and ammeter A are respectively:



1. 150 V, 2.2 A

2. 220 V, 2.2 A

3. 220 V, 2.0 A

4. 100 V, 2.0 A

189.

A 220 V input is supplied to a transformer. The output circuit draws a current of 2.0 A at 440 V. If the efficiency of the transformer is 80%, the current drawn by the primary windings of the transformer is:

1. 3.6 A

2. 2.8 A

3. 2.5 A

4. 5.0 A

190.

A source S_1 is producing, 10^{15} photons per sec of wavelength 5000 $\overset{0}{\text{A}}$. Another source S_2 is producing 1.02×10^{15} photons per second of wavelength 5100 $\overset{0}{\text{A}}$. Then, (power of S_2)/(power of S_1) is equal to

1. 1.00

2. 1.02

3. 1.04

4. 0.98

191.

A common emitter amplifier has a voltage gain of 50, an input impedance of 100 Ω and an output impedance of 200 Ω. The power gain of the amplifier is:

1. 500

2. 1000

3. 1250

4. 50

192.

A vibration magnetometer placed in a magnetic meridian has a small bar magnet. The magnet executes oscillations with a time period of 2s in earth's horizontal magnetic field of 24 μT. When a horizontal field of 18 μT is produced opposite to the earth's field by placing a current-carrying wire, the new time period of the magnet will be

1. 1s

2. 2s

3. 3s

4. 4s

193.

Two positive ions, each carrying a charge q, are separated by a distance d. If F is the force of repulsion between the ions, the number of electrons missing from each ion will be (e being the charge on an electron)

1. $\frac{4\pi\varepsilon_0 F d^2}{e^2}$

2. $\sqrt{\frac{4\pi\varepsilon_0 F d^2}{d^2}}$

3. $\sqrt{\frac{4\pi\varepsilon_0 F d^2}{e^2}}$

4. $\frac{4\pi\varepsilon_0 F d^2}{q^2}$

194.

The potential difference that must be applied to stop the fastest photoelectrons emitted by a nickel surface, having work function 5.01 eV, when ultraviolet light of 200 nm falls on it, must be

1. 2.4 V

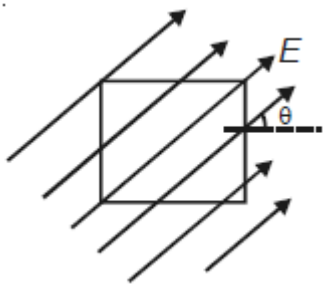
2. -1.2 V

3. -2.4 V

4. 1.2 V

195.

A square surface of side L metre in the plane of the paper is placed in a uniform electric field E (volt/m) acting along the same place at an angle θ with the horizontal side of the square as shown in figure. The electric flux linked to the surface in unit of V-m, is



1. EL^2

2. $EL^2 \cos\theta$

3. $EL^2 \sin\theta$

4. 0

196.

A series combination of n_1 capacitors, each of value C_1, is charged by a source of potential difference 4V. When another parallel combination of n_2 capacitors, each of value C_2, is charged by a source of potential difference V, it has the same (total) energy stored in it, as the first combination has. The value of C_2 , in terms of C_1, is then

1. $\frac{2C_1}{n_1 n_2}$

2. $16\frac{n_2}{n_1}C_1$

3. $2\frac{n_2}{n_1}C_1$

4. $\frac{16C_1}{n_1 n_2}$

197.

Electromagnets are made of soft iron because soft iron has

1. low retentivity and high coercive force

2. high retentivity and high coercive force

3. low retentivity and low coercive force

4. high retentivity and low coercive force

198.

A square current-carrying loop is suspended in a uniform magnetic field acting in the plane of the loop. If the force on one arm of the loop is $\vec{F}$, the net force on the remaining three arms of the loop is:

1. $3\vec{F}$

2. $-\vec{F}$

3. $-3\vec{F}$

4. $\vec{F}$

199.

Consider the following two statements :
(A) Kirchhoff's junction law follows from the conservation of charge.
(B) Kirchhoff's loop law follows from the conservation of energy.
Which of the following is correct?

1. Both (A) and (B) are wrong

2. (A) is correct but (B) is wrong

3. (A) is wrong and (B) is correct

4. Both (A) and (B) are correct.

200.

To get an output Y = 1 from the circuit shown below, the input must be:

1. A=0 B=1 C=0
2. A=0 B=0 C=1
3. A=1 B=0 C=1
4. A=1 B=0 C=0