

NEET 2018 (QUESTION WITH ANSWER)

1. Oxygen is not produced during photosynthesis by

- (1) *Nostoc*
- (2) *Cycas*
- (3) Green sulphur bacteria
- (4) *Chara*

Ans. (3)

2. Which one of the following plants shows a very close relationship with a species of moth, where none of the two can complete its life cycle without the other ?

- (1) *Yucca* (2) *Banana*
- (3) *Hydrilla* (4) *Viola*

Ans. (1)

3. In which of the following forms is iron absorbed by plants ?

- (1) Ferrous
- (2) Free element
- (3) Ferric
- (4) Both ferric and ferrous

Ans. (4)

4. Which of the following elements is responsible for maintaining turgor in cells ?

- (1) Sodium (2) Potassium
- (3) Magnesium (4) Calcium

Ans. (2)

5. Pollen grains can be stored for several years in liquid nitrogen having a temperature of

- (1) -80°C (2) -196°C
- (3) -120°C (4) -160°C

Ans. (2)

6. Double fertilization is

- (1) Fusion of one male gamete with two polar nuclei
- (2) Fusion of two male gametes with one egg
- (3) Fusion of two male gametes of a pollen tube with two different eggs
- (4) Syngamy and triple fusion

Ans. (4)

7. What is the role of NAD^{+} in cellular respiration ?

- (1) It functions as an electron carrier.
- (2) It is a nucleotide source for ATP synthesis.
- (3) It functions as an enzyme.
- (4) It is the final electron acceptor for anaerobic respiration.

Ans. (1)

8. Select the correct match :

- (1) $F_2 \times$ Recessive parent – Dihybrid cross
- (2) T. H. Morgan – Transduction
- (3) Ribozyme – Nucleic acid
- (4) G. Mendel – Transformation

Ans. (3)

9. Which of the following is commonly used as a vector for introducing a DNA fragment in human lymphocytes ?

- (1) *Ti* plasmid (2) λ phage
- (3) Retrovirus (4) pBR 322

Ans. (3)

10. Use of bioresources by multinational companies and organisations without authorisation from the concerned country and its people is called

- (1) Biopiracy (2) Biodegradation
- (3) Bio-infringement (4) Bioexploitation

Ans. (1)

11. In India, the organisation responsible for assessing the safety of introducing genetically modified organisms for public use is

- (1) Council for Scientific and Industrial Research (CSIR)
- (2) Research Committee on Genetic Manipulation (RCGM)
- (3) Indian Council of Medical Research (ICMR)
- (4) Genetic Engineering Appraisal Committee (GEAC)

Ans. (4)

12. The correct order of steps in Polymerase Chain Reaction (PCR) is

- (1) Annealing, Extension, Denaturation
- (2) Denaturation, Extension, Annealing
- (3) Extension, Denaturation, Annealing
- (4) Denaturation, Annealing, Extension

Ans. (4)

13. A 'new' variety of rice was patented by a foreign company, though such varieties have been present in India for a long time. This is related to

- (1) Sharbati Sonora
- (2) LermaRojo
- (3) Co-667
- (4) Basmati

Ans. (4)

14. Natality refer to

- (1) Birth rate
- (2) Number of individuals leaving the habitat
- (3) Death rate
- (4) Number of individuals entering a habitat

Ans. (1)

15. World Ozone Day is celebrated on

- (1) 21st April
- (2) 16th September
- (3) 5th June
- (4) 22nd April

Ans. (2)

16. Which of the following is a secondary pollutant ?

- (1) CO₂
- (2) SO₂
- (3) CO
- (4) O₃

Ans. (4)

17. Niche is

- (1) the physical space where an organism lives
- (2) the range of temperature that the organism needs to live
- (3) all the biological factors in the organism's environment
- (4) the functional role played by the organism where it lives

Ans. (4)

18. What type of ecological pyramid would be obtained with the following data :

Secondary consumer : 120 g

Primary consumer : 60 g

Primary producer : 10 g

- (1) Pyramid of energy
- (2) Upright pyramid of number
- (3) Inverted pyramid of biomass
- (4) Upright pyramid of biomass

Ans. (3)

19. In stratosphere, which of the following elements acts as a catalyst in degradation of ozone and release of molecular oxygen ?

- (1) Cl
- (2) Fe
- (3) Carbon
- (4) Oxygen

Ans. (1)

20. Which of the following pairs is wrongly matched ?

- (1) ABO blood grouping : Co-dominance
- (2) XO type sex determination : Grasshopper
- (3) Starch synthesis in pea : Multiple alleles
- (4) T. H. Morgan : Linkage

Ans. (3)

21. Select the correct statement :

- (1) Punnett square was developed by a British scientist
 (2) Spliceosomes take part in translation.
 (3) Franklin Stahl coined the term 'linkage'.
 (4) Transduction was discovered by S. Altman.

Ans. (1)

22. The experimental proof for semiconservative replication of DNA was first shown in a

- (1) Bacterium
 (2) Plant
 (3) Fungus
 (4) Virus

Ans. (1)

23. Select the correct match :

- (1) Alfred Hershey and Martha Chase – TMV
 (2) Mathew Meselson and F. Stahl – *Pisum Sativum*
 (3) Alec Jeffreys – *Streptococcus pneumoniae*
 (4) Francois Jacob and Jacques Monod – Lac operon

Ans. (4)

24. Offsets are produced by

- (1) Mitotic divisions (2) Parthenocarpy
 (3) Meiotic divisions (4) Parthenogenesis

Ans. (1)

25. Which of the following flowers only once in its life-time ?

- (1) Jackfruit (2) Mango
 (3) Bamboo species (4) Papaya

Ans. (3)

26. Which of the following has proved helpful in preserving pollen as fossils ?

- (1) Cellulosic intine (2) Oil content
 (3) Pollenkitt (4) Sporopollenin

Ans. (4)

27. The two functional groups characteristic sugars are

- (1) carbonyl and methyl
 (2) carbonyl and phosphate
 (3) hydroxyl and methyl
 (4) carbonyl and hydroxyl

Ans. (4)

28. Which among the following is not a prokaryote ?

- (1) *Mycobacterium* (2) *Nostoc*
 (3) *Saccharomyces* (4) *Oscillatoria*

Ans. (3)

29. Which of the following is not a product of light reaction of photosynthesis ?

- (1) NADH (2) NADPH
 (3) ATP (4) Oxygen

Ans. (1)

30. Stomatal movement is not affected by

- (1) Light
 (2) O₂ concentration
 (3) Temperature
 (4) CO₂ concentration

Ans. (2)

31. The Golgi complex participates in

- (1) Formation of secretory vesicles
 (2) Respiration in bacteria
 (3) Fatty acid breakdown
 (4) Activation of amino acid

Ans. (1)

32. Which of the following is true for nucleolus?

- (1) It is membrane-bound structure
 (2) It takes part in spindle formation
 (3) Larger nucleoli are present in dividing cells.
 (4) It is a site for active ribosomal RNA synthesis

Ans. (4)

33. The stage during which separation of the paired homologous chromosomes begins is:

- (1) Diplotene (2) Diakinesis
(3) Pachytene (4) Zygotene

Ans. (1)

34. Stomata in grass leaf are

- (1) Kidney shaped (2) Rectangular
(3) Dumb-bell shaped (4) Barrel shaped

Ans. (3)

35. Casparian strips occur in

- (1) Pericycle (2) Cortex
(3) Epidermis (4) Endodermis

Ans. (4)

36. Plant having little or no secondary growth are

- (1) Deciduous angiosperms
(2) Conifers
(3) Grasses
(4) Cycads

Ans. (3)

37. Pneumatophores occur in

- (1) Free floating hydrophytes
(2) Carnivorous plants
(3) Halophytes
(4) Submerged hydrophytes

Ans. (3)

38. Sweet potato is a modified

- (1) Adventitious root
(2) Tap root
(3) Stem
(4) Rhizome

Ans. (1)

39. Secondary xylem and phloem in dicot stem are produced by

- (1) Vascular cambium
(2) Phellogen
(3) Apical meristems
(4) Axillary meristems

Ans. (1)

40. Which of the following statements is correct?

- (1) Selaginella is heterosporous, while Salvinia is homosporous
(2) Horsetails are gymnosperms
(3) Ovules are not enclosed by ovary wall in gymnosperms
(4) Stems are usually unbranched in both Cycas and Cedrus.

Ans. (3)

41. Select the wrong statement :

- (1) Mushrooms belong to Basidiomycetes
(2) Pseudopodia are locomotory and feeding structures in Sporozoans.
(3) Cells wall is present in members of Fungi and plantae
(4) Mitochondria are the powerhouse of the cell in all kingdoms except monera.

Ans. (2)

42. Winged pollen grains are present in

- (1) Cyas (2) Mango
(3) Mustard (4) Pinus

Ans. (4)

43. Afterkaryogamy followed by meiosis, spores are produced exogonously in

- (1) Alternaria (2) Agaricus
(3) Neurospora (4) Saccharomyces

Ans. (2)

44. Match the items given in Column I with those in Column II and select the correct option given below :

Column-I

Column-II

(a) Herbarium

(i) It is a place having a collection of Preserved plants and Animals

(b) Key

(ii) A list that Enumerates methodically all the

- species found in an area with brief description aiding identification.
- (c) Museum (iii) Is a place where dried and pressed plant specimens mounted on sheets are kept.
- (d) Catalogue (iv) A booklet containing a list of characters and their alternates which are helpful in identification of various taxa

(a)	(b)	(c)	(d)
(1) (iii)	(ii)	(i)	(iv)
(2) (ii)	(iv)	(iii)	(i)
(3) (i)	(iv)	(iii)	(ii)
(4) (iii)	(iv)	(i)	(ii)

Ans. (4)

45. Which one is wrongly matched ?

- (1) Biflagellate Zoospores – Brown algae
- (2) Gemma cups – Marchantia
- (3) Uniflagellate gametes – Polysiphonia
- (4) Unicellular organism – Chlorella

Ans. (3)

46. Which of these statements is incorrect ?

- (1) Glycolysis occurs in cytosol.
- (2) Glycolysis operates as long as it is supplied with NAD that can pick up hydrogen atoms.
- (3) Enzymes of TCA cycle are present in mitochondrial matrix.
- (4) Oxidative phosphorylation takes place in outer mitochondrial membrane.

Ans. (4)

47. Nissl bodies are mainly composed of

- (1) DNA and RNA
- (2) Nucleic acids and SER
- (3) Proteins and lipids
- (4) Free ribosomes and RER

Ans. (4)

48. Select the incorrect match :

- (1) Allosomes – Sex chromosomes
- (2) Submetacentric – L-shaped chromosomes
- (3) Lampbrush chromosomes – Diplotene bivalents
- (4) Polytene chromosomes – Oocytes of amphibians

Ans. (4)

49. Which of the following events does not occur in rough endoplasmic reticulum ?

- (1) Protein glycosylation
- (2) Cleavage of signal peptide
- (3) Protein folding
- (4) Phospholipid synthesis

Ans. (4)

50. Which of the following terms describe human dentition ?

- (1) Thecodont, Diphyodont, Heterodont
- (2) Pleurodont, Monophyodont, Homodont
- (3) Thecodont, Diphyodont, Homodont
- (4) Pleurodont, Diphyodont, Heterodont

Ans. (1)

51. Many ribosomes may associate with a single mRNA to form multiple copies of a polypeptide simultaneously. Such strings of ribosomes are termed as

- (1) Polyhedral bodies
- (2) Plastidome
- (3) Polysome
- (4) Nucleosome

Ans. (3)

52. Which one of these animals is not a homeotherm ?

- (1) Chelone (2) Camelus
(3) Macropus (4) Psittacula

Ans. (1)

53. Identify the vertebrate group of animals characterized by crop and gizzard in its digestive system.

- (1) Reptilia (2) Aves
(3) Amphibia (4) Osteichthyes

Ans. (2)

54. Which of the following features is used to identify a male cockroach from a female cockroach ?

- (1) Presence of caudal styles
(2) Forewings with darker tegmina
(3) Presence of a boat shaped sternum on the 9th abdominal segment.
(4) Presence of anal cerci

Ans. (1)

55. Which of the following organisms are known as chief producers in the oceans ?

- (1) Diatoms (2) Cyanobacteria
(3) Dinoflagellates (4) Euglenoids

Ans. (1)

56. Ciliates differ from all other protozoans in

- (1) having a contractile vacuole for removing excess water.
(2) using pseudopodia for capturing prey
(3) using flagella for locomotion
(4) having two types of nuclei

Ans. (4)

57. Which of the following animals does not undergo metamorphosis ?

- (1) Tunicate (2) Moth
(3) Earthworm (4) Starfish

Ans. (3)

58. Which of the following options correctly represents the lung conditions in asthma and emphysema, respectively ?

- (1) Increased number of bronchioles; Increased respiratory surface.
(2) Increased respiratory surface; Inflammations of bronchioles
(3) Inflammation of bronchioles; Decreased respiratory surface.
(4) Decreased respiratory surface; Inflammation of bronchioles

Ans. (3)

59. Match the items given in Column I with those in Column II and select the correct option given below :

Column I	Column II
(a) Tricuspid valve	i. Between left atrium and left ventricle
(b) Bicuspid valve	ii. Between right ventricle and pulmonary artery
(c) Semilunar valve	iii. Between right atrium and right ventricle
	a b c
(1) i	iii ii
(2) i	ii iii
(3) iii	i ii
(4) ii	i iii

Ans. (3)

60. Match the items given in Column I with those in Column II and select the correct option given below :

Column I	Column II
(a) Tidal Volume	i. 2500-3000 mL
(b) Inspiratory Reserve volume	ii. 1100-1200 mL
(c) Expiratory Reserve volume	iii. 500-550 mL

(d) Residual Volume iv. 1000-1100 mL

	a	b	c	d
(1)	iii	i	iv	ii
(2)	i	iv	ii	iii
(3)	iii	ii	i	iv
(4)	iv	iii	ii	i

Ans. (1)

61. Which of the following is an amino acid derived hormone ?

- (1) Ecdysone (2) Estradiol
(3) Epinephrine (4) Estriol

Ans. (3)

62. Which of the following structures or regions is incorrectly paired with its function ?

- (1) Limbic system : consists of fibre tracts that interconnect different regions of brain; controls movement.
(2) Hypothalamus : production of releasing hormones and regulation of temperature, hunger and thirst
(3) Medulla oblongata : controls respiration and cardiovascular reflexes
(4) Corpus callosum : band of fibres connecting left and right cerebral hemispheres.

Ans. (1)

63. The transparent lens in the human eye is held in its place by

- (1) ligaments attached to the iris.
(2) smooth muscles attached to the iris
(3) ligaments attached to the ciliary body
(4) smooth muscles attached to the ciliary

body

Ans. (3)

64. Which of the following hormones can play a significant role in osteoporosis ?

- (1) Progesterone and Aldosterone
(2) Estrogen and Parathyroid hormone
(3) Aldosterone and Prolactin
(4) Parathyroid hormone and Prolactin

Ans. (2)

65. Hormones secreted by the placenta to maintain pregnancy are

- (1) hCG, hPL, estrogens, relaxin, oxytocin
(2) hCG, hPL, progestogens, estrogens
(3) hCG, hPL, progestogens, prolactin
(4) hCG, progestogens, estrogens, glucocorticoids

Ans. (2)

66. The contraceptive 'SAHELI'

- (1) increases the concentration of estrogen and prevents ovulation in females.
(2) is an IUD
(3) blocks estrogen receptors in the uterus preventing eggs from getting implanted.
(4) is a post-coital contraceptive.

Ans. (3)

67. The difference between spermiogenesis and spermiation is

- (1) In spermiogenesis spermatozoa are formed, while in spermiation spermatids are formed.
(2) In spermiogenesis spermatozoa from sertoli cells are released into the cavity of seminiferous tubules, while in spermiation spermatozoa are formed.
(3) In spermiogenesis spermatids are formed, while in spermiation spermatozoa are formed.
(4) In spermiogenesis spermatozoa are formed, while in

spermiation spermatzoa are released from sertoli cells into the cavity of seminiferous tubules.

Ans. (4)

68. The amnion of mammalian embryo is derived from

- (1) endoderm and mesoderm
- (2) mesoderm and trophoblast
- (3) ectoderm and mesoderm
- (4) ectoderm and endoderm

Ans. (2)

69. Among the following sets of examples for divergent evolution, select the incorrect option :

- (1) Heart of bat, man and cheetah
- (2) Brain of bat, man and cheetah
- (3) Forelimbs of man, bat and cheetah
- (4) Eye of octopus, bat and man

Ans. (4)

70. Which of the following is not an autoimmune disease ?

- (1) Rheumatoid arthritis
- (2) Alzheimer's disease
- (3) Psoriasis
- (4) Vitiligo

Ans. (2)

71. In which disease does mosquito transmitted pathogen cause chronic inflammation of lymphatic vessels ?

- (1) Ascariasis
- (2) Ringworm disease
- (3) Elephantiasis
- (4) Amoebiasis

Ans. (3)

72. Conversion of milk to curd improves its nutritional value by increasing the amount of

- (1) Vitamin A
- (2) Vitamin B₁₂
- (3) Vitamin D
- (4) Vitamin E

Ans. (2)

73. The similarity of bone structure in the forelimbs of many vertebrates is an example of

- (1) Analogy
- (2) Convergent evolution
- (3) Homology
- (4) Adaptive radiation

Ans. (3)

74. Which of the following characteristics represent 'Inheritance of blood groups' in humans ?

- a. Dominance
- b. Co-dominance
- c. Multiple allele
- d. Incomplete dominance
- e. Polygenic inheritance

- (1) a, b and c
- (2) b, d and e
- (3) b, c and e
- (4) a, c and e

Ans. (1)

75. Which one of the following population interactions is widely used in medical science for the production of antibiotics ?

- (1) Mutualism
- (2) Parasitism
- (3) Commensalism
- (4) Amensalism

Ans. (4)

76. Match the items given in column I with those in column II and select the correct options given below :

Column I	Column II
(a) Eutrophication	i. UV-B radiation
(b) Sanitary landfill	ii. Deforestation
(c) Snow blindness	iii. Nutrient Enrichment
(d) Jhum cultivation	iv. Waste disposal
a	b
c	d
(1) i	iii iv ii
(2) iii	iv i ii
(3) ii	i iii iv
(4) i	ii iv iii

Ans. (2)

77. All of the following are included in 'Ex-situ conservation' except

- (1) Sacred groves (2) Botanical gardens
(3) Wildlife safari parks
(4) Seed Banks

Ans. (1)

78. In a growing population of a country.

- (1) reproductive individuals are less than the post-reproductive individuals.
(2) reproductive and pre-reproductive individuals are equal in number.
(3) pre-reproductive individuals are more than the reproductive individuals.
(4) pre-reproductive individuals are less than the reproductive individuals.

Ans. (3)

79. Which part of poppy plant is used to obtain the drug "Smack" ?

- (1) Latex (2) Roots
(3) Flowers (4) Leaves

Ans. (1)

80. All of the following are parts of an operon except

- (1) structural genes (2) an enhancer
(3) an operator (4) a promoter

Ans. (2)

81. A woman has an X-linked condition on one of her X chromosomes. This chromosome can be inherited by

- (1) Only sons
(2) Only grandchildren
(3) Only daughters
(4) Both sons and daughters

Ans. (4)

82. According to Huger de Vries, the mechanism of evolution is

- (1) Saltation
(2) Phenotypic variations

(3) Multiple step mutations

(4) Minor mutations

Ans. (1)

83. AGGTATCGCAT is a sequence from the coding strand of a gene. What will be the corresponding sequence of the transcribed mRNA ?

- (1) UGGTUTCGCAT (2) ACCUAUGCGAU
(3) AGGUAUCGCAU (4) UCCAUAGCGUA

Ans. (3)

84. Match the items given in column I with those in Column II and select the correct option given below :

Column I	Column II
(a) Proliferative Phase	i. Breakdown of Endometrial lining
(b) Secretory Phase	ii. Follicular Phase
(c) Menstruation	iii. Luteal Phase

	a	b	c
(1)	i	iii	ii
(2)	ii	iii	i
(3)	iii	ii	i
(4)	iii	i	ii

Ans. (2)

85. Match the items given in column I with those in Column II and select the correct option given below :

Column I	Column II
(a) Glycosuria	i. Accumulation of uric acid in joints
(b) Gout	ii. Mass of crystallised slats within the kidney
(c) Renal calculi	iii. Inflammation in Glomeruli
(d) Glomerular nephritis	iv. Presence of Glucose in urine

	a	b	c	d
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- (1) i ii iii iv
 (2) ii iii i iv
 (3) iii ii iv i
 (4) iv i ii iii

Ans. (4)

86. Match the items given in column I with those in Column II and select the correct option given below :

Column I (Function)	Column II (Part of Excretory System)
(a) Ultrafiltration	i. Henle's loop
(b) Concentration of urine	ii. Ureter
(c) Transport of urine	iii. Urinary bladder
(d) Storage of urine	iv. Malpighian corpuscle
	v. Proximal convoluted tubule

- | | a | b | c | d |
|-----|----|----|----|-----|
| (1) | iv | i | ii | iii |
| (2) | v | iv | i | ii |
| (3) | iv | v | ii | iii |
| (4) | v | iv | i | iii |

Ans. (1)

87. Which of the following is an occupational respiratory disorder ?

- (1) Silicosis (2) Botulism
 (3) Anthracis (4) Emphysema

Ans. (1)

88. Calcium is important in skeletal muscle contraction because it

- (1) activates the myosin ATPase by binding to it.
 (2) detaching the myosin head from the actin filament.

(3) binds to troponin to remove the masking of active sites on actin for myosin.

(4) prevents the formation of bonds between the myosin cross bridges and the actin filament.

Ans. (3)

89. Which of the following gastric cells indirectly help in erythropoiesis ?

- (1) Mucous cells
 (2) Goblet cells
 (3) Chief cells
 (4) Parietal cells

Ans. (4)

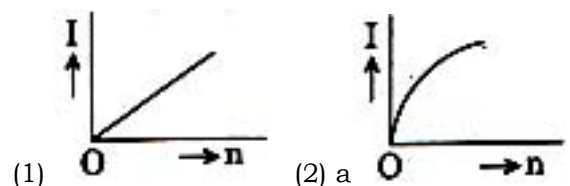
90. Match the items given in column I with those in Column II and select the correct option given below :

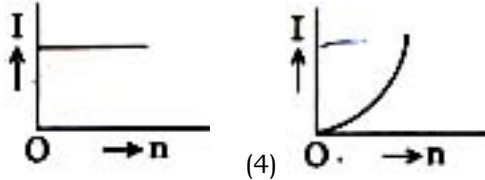
Column I	Column II
(a) Fibrinogen	i. Osmotic balance
(b) Globulin	ii. Blood clotting
(c) Albumin	iii. Defence mechanism

- | | a | b | c |
|-----|-----|-----|-----|
| (1) | i | ii | iii |
| (2) | i | iii | ii |
| (3) | iii | ii | i |
| (4) | ii | iii | i |

Ans. (4)

91. A battery consist of a variable number 'n' of identical cells (having internal resistance 'r' each) which are connected in series. The terminals of the battery are short-circuited and the current I is measured. Which of the graphs shows the correct relationship between I and n ?





Ans. (3)

92. A carbon resistor of $(47 \pm 4.7) \text{ k}\Omega$ is to be marked with rings of different colours for its identification. The colour code sequence will be

- (1) Yellow – Violet – Orange – Silver
- (2) Yellow – Green – Violet – Gold
- (3) Violet – Yellow – Orange – Silver
- (4) Green – Orange – Violet – Gold

Ans. (1)

93. A set of 'n' equal resistors, of value 'R' each, are connected in series to a battery of emf 'E' and internal resistance 'R'. The current drawn is I. Now, the 'n' resistors are connected in parallel to the same battery. Then the current drawn from battery becomes 10 I. The value of 'n' is

- (1) 11
- (2) 20
- (3) 10
- (4) 9

Ans. (3)

94. An em wave is propagating in a medium with a velocity $\vec{V} = \hat{V}i$. The instantaneous oscillating electric field of this em wave is along +y axis. Then the direction of oscillating magnetic field of the em wave will be along.

- (1) +z direction
- (2) -y direction
- (3) -z direction
- (4) -x direction

Ans. (1)

95. The magnetic potential energy stored in a certain inductor is 25 mJ, when the current in the inductor is 60 mA. This inductor is of inductance

- (1) 138.88 H
- (2) 1.389 H
- (3) 0.138 H
- (4) 13.89 H

Ans. (4)

96. The reflective index of the material of a prism is $\sqrt{2}$ and the angle of the prism is 30° . One of the two refracting surfaces of the prism is made a mirror inwards, by silver coating. A beam of monochromatic light entering the prism from the other face will retrace its path (after reflection from the silvered surface) if its angle of incidence on the prism is

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

Ans. (1)

97. An object is placed at a distance of 40 cm from a concave mirror of focal length 15 cm. If the object is displaced through a distance of 20 cm towards the mirror, the displacement of the image will be

- (1) 36 cm away from the mirror
- (2) 30 cm towards the mirror
- (3) 30 cm away from the mirror
- (4) 36 cm towards the mirror

Ans. (1)

98. An electron of mass m with an initial velocity $\vec{V} = V_0\hat{i} (V_0 > 0)$ enters an electric field $\vec{E} = -E_0\hat{i} (E_0 = \text{constant} > 0)$ at $t = 0$. If λ_0 is its de-Broglie wavelength initially, then its de-Broglie wavelength at time t is

- (1) $\lambda_0 \left(1 + \frac{eE_0}{mV_0} t \right)$
- (2) $\lambda_0 t$
- (3) $\frac{\lambda_0}{\left(1 + \frac{eE_0}{mV_0} t \right)}$
- (4) λ_0

Ans. (3)

99. When the light of frequency $2\nu_0$ (Where ν_0 is threshold frequency), is incident on a metal plate, the maximum velocity of electrons emitted is ν_1 . When the frequency of the

incident radiation is increased to $5v_0$, the maximum velocity of electrons emitted from the same plate is v_2 . The ratio of v_1 to v_2 is

- (1) 1 : 4 (2) 4 : 1
(3) 1 : 2 (4) 2 : 1

Ans. (3)

100. The ratio of kinetic energy to the total energy of an electron in a Bohr orbit of the hydrogen atom, is

- (1) 1 : -1 (2) 2 : -1
(3) 1 : 1 (4) 1 : -2

Ans. (1)

101. For a radioactive material half-life is 10 minutes. If initially there are 600 number of nuclei, the time take (in minutes) for the disintegration of 450 nuclei is

- (1) 10 (2) 30
(3) 20 (4) 15

Ans. (3)

102. Unpolarised light is incident from air on a plane surface of a material of refractive index ' μ '. At a particular angle of incidence ' i ', it is found that the reflected and refracted rays are perpendicular to each other. which of the following option is correct for this situation?

(1) Reflected light is polarised with its electric vector perpendicular to the plane of incidence

(2) $i = \sin^{-1}\left(\frac{1}{\mu}\right)$

(3) Reflected light is polarised with its electric vector parallel to the plane of incidence

(4) $i = \tan^{-1}\left(\frac{1}{\mu}\right)$

Ans. (1)

103. In Young's double slit experiment the separation d between the slits is 2 mm, the wavelength λ of the light used is 5896 Å and distance D between the screen and slits is 100 cm. It is found that the angular width of the fringes is 0.20° . To increase the fringe angular width to 0.21° (with same λ and D) the separation between the slits needs to be changed to

- (1) 1.9 mm (2) 2.1 mm
(3) 1.8 mm (4) 1.7 mm

Ans. (1)

104. An astronomical refracting telescope will have large angular magnification and high angular resolution, when it has an objective lens of

- (1) large focal length and large diameter
(2) large focal length and small diameter
(3) small focal length and large diameter
(4) small focal length and small diameter

Ans. (1)

105. An inductor 20 mH, a capacitor 100 μF and a resistor 50Ω are connected in series across source of emf, $V = 10 \sin 314 t$. The power loss in the circuit is

- (1) 0.43 W (2) 2.74 W
(3) 0.79 W (4) 1.13 W

Ans. (3)

106. A metallic rod of mass per unit length 0.5 kg m^{-1} is lying horizontally on a smooth inclined plane which makes an angle of 30° with the horizontal. The rod is not allowed to slide down by flowing a current through it when a magnetic field of induction 0.25 T is acting on it in the vertical direction. The current flowing in the rod to keep it stationary is

- (1) 5.98 A (2) 14.76 A
(3) 7.14 A (4) 11.32 A

Ans. (4)

107. Current sensitivity of a moving coil galvanometer is 5 div/mA and its voltage sensitivity (angular deflection per unit voltage applied) is 20 div/V. The resistance of the galvanometer is

- (1) 25 Ω (2) 250 Ω
- (3) 40 Ω (4) 500 Ω

Ans. (2)

108. A thin diamagnetic rod is placed vertically between the poles of an electromagnet. When the current in the electromagnet is switched on, then the diamagnetic rod is pushed up, out of the horizontal magnetic field. Hence the rod gains gravitational potential energy. The work required to do this comes from

- (1) the magnetic field
- (2) the lattice structure of the material of the rod
- (3) the current source
- (4) the induced electric field due to the changing magnetic field.

Ans. (3)

109. A tuning fork is used to produce resonance in a glass tube. The length of the air column in this tube can be adjusted by a variable piston. At room temperature of 27°C two successive resonances are produced at 20 cm and 73 cm of column length. If the frequency of the tuning fork is 320 Hz, the velocity of sound in air at 27°C is

- (1) 339 m/s (2) 350 m/s
- (3) 330 m/s (4) 300 m/s

Ans. (1)

110. An electron falls from rest through a vertical distance h in a uniform and vertically upward directed electric field E . The direction of electric field is now reversed, keeping its

magnitude the same. A proton is allowed to fall from rest in it through the same vertical distance h . The time of fall of the electron, in comparison to the time of fall of the proton is

- (1) 5 times greater (2) 10 times greater
- (3) smaller (4) equal

Ans. (3)

111. A pendulum is hung from the roof of a sufficiently high building and is moving freely to and fro like a simple harmonic oscillator. The acceleration of the bob of the pendulum is 20 m/s² at a distance of 5 m from the mean position. The time period of oscillation is

- (1) π s (2) 2 s
- (3) 2π s (4) 1 s

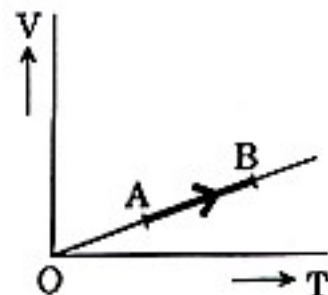
Ans. (1)

112. The electrostatic force between the metal plates of an isolated parallel plate capacitor C having a charge Q and area A , is

- (1) linearly proportional to the distance between the plates.
- (2) proportional to the square root of the distance between the plates.
- (3) independent of the distance between the plates.
- (4) inversely proportional to the distance between the plates.

Ans. (3)

113. The volume (V) of a monatomic gas varies its temperature (T), as shown in the graph. The ratio of work done by the gas, to the heat absorbed by it, when it undergoes a change from state A to state B, is



- (1) $\frac{2}{3}$ (2) $\frac{1}{3}$
 (3) $\frac{2}{5}$ (4) $\frac{2}{7}$

Ans. (3)

114. The efficiency of an ideal heat engine working between the freezing point and boiling point of water, is

- (1) 20 % (2) 6.25 %
 (3) 26.8 % (4) 12.5 %

Ans. (3)

115. At what temperature will the rms speed of oxygen molecules become just sufficient for escaping from the Earth's atmosphere?

(Given Mass of oxygen molecule (m) = 2.76×10^{-26} kg Boltzmann's constant $k_B = 1.38 \times 10^{-23}$ JK⁻¹)

- (1) 8.360×10^4 K (2) 5.016×10^4 K
 (3) 2.508×10^4 K (4) 1.254×10^4 K

Ans. (1)

116. The fundamental frequency in an open organ pipe is equal to the third harmonic of a closed organ pipe. If the length of the closed organ pipe is 20 cm, the length of the open organ pipe is

- (1) 8 cm (2) 12.5 cm
 (3) 13.2 cm (4) 16 cm

Ans. (3)

117. Two wires are made of the same material and have the same volume. The first wire has cross-sectional area A and the second wire has cross-sectional area 3 A. If the length of the first wire is increased by $\Delta\ell$ on applying a force F, how much force is needed to stretch the second wire by the same amount?

- (1) 6 F (2) 4 F
 (3) 9 F (4) F

Ans. (3)

118. A sample of 0.1 g of water at 100°C and normal pressure (1.013×10^5 Nm⁻²) requires 54 cal of heat energy to convert to steam at 100°C. If the volume of the steam produced is 167.1 cc, the change in internal energy of the sample, is

- (1) 208.7 J (2) 42.2 J
 (3) 104.3 J (4) 84.5 J

Ans. (1)

119. The power radiated by a black body is P and it radiates maximum energy at wavelength, λ_0 . If the temperature of the black body is now changed so that it radiates maximum energy at wavelength $\frac{3}{4}\lambda_0$, the power radiated by it becomes nP.

The value of n is

- (1) $\frac{4}{3}$ (2) $\frac{256}{81}$
 (3) $\frac{3}{4}$ (4) $\frac{281}{256}$

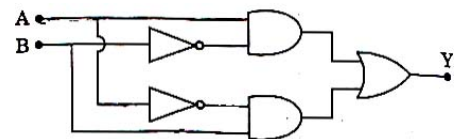
Ans. (2)

120. A small sphere of radius 'r' falls from rest in a viscous liquid. As a result, heat is produced due to viscous force. The rate of production of heat when the sphere attains its terminal velocity, is proportional to

- (1) r² (2) r⁵
 (3) r³ (4) r⁴

Ans. (2)

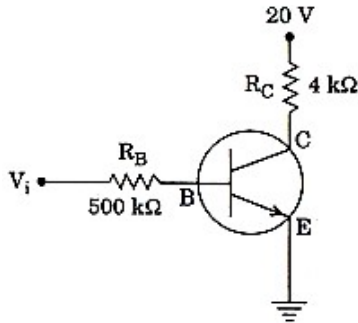
121. In the combination of the following gates of output Y can be written in terms of inputs A and B as



- (1) $A.\bar{B} + \bar{A}.B$ (2) $\overline{A.B} + A.B$
 (3) $\overline{A.B}$ (4) $\overline{A + B}$

Ans. (1)

122. In the circuit shown in the figure, the input voltage V_i is 20 V, $V_{BE} = 0$ and $V_{CE} = 0$. The values of I_B , I_C and β are give by



- (1) $I_B = 25 \mu A, I_C = 5 \text{ mA}, \beta = 200$
- (2) $I_B = 20 \mu A, I_C = 5 \text{ mA}, \beta = 250$
- (3) $I_B = 40 \mu A, I_C = 5 \text{ mA}, \beta = 250$
- (4) $I_B = 40 \mu A, I_C = 5 \text{ mA}, \beta = 125$

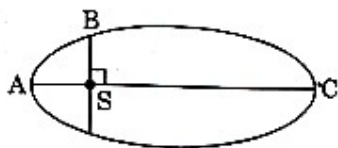
Ans. (4)

123. In a p-n junction diode, change in temperature due to heating

- (1) affects only forwards resistance
- (2) does not affect resistance of p-n junction
- (3) affects only reverse resistance
- (4) affects the overall V – I characteristics of p-n junction

Ans. (4)

124. The kinetic energy of a planet in an elliptical orbit about the Sun, at positions A, B and C are K_A , K_B and K_C , respectively. AC is the major axis and SB is perpendicular to AC at the position of the Sun S as shown in the figure. Then



- (1) $K_A > K_B > K_C$ (2) $K_B < K_A < K_C$
- (3) $K_A < K_B < K_C$ (4) $K_B > K_A > K_C$

Ans. (1)

125. A solid sphere is in rolling motion. In rolling motion a body possesses translational kinetic energy (K_t) as well as rotational kinetic energy (K_r) simultaneously. The ratio $K_t : (K_t + K_r)$ for the sphere is

- (1) 5 : 7 (2) 10 : 7
- (3) 7 : 10 (4) 2 : 5

Ans. (1)

126. If the mass of the Sun were them times smaller and the universal gravitational constant were ten times larger in magnitude, which of the following is not correct?

- (1) Walking on the ground would become more difficult
- (2) Time period of a simple pendulum on the Earth would decrease.
- (3) Raindrops will fall faster.
- (4) 'g' on the Earth will not change.

Ans. (4)

127. A solid sphere is rotating freely about its symmetry axis in free space. The radius of the sphere is increased keeping its mass same. Which of the following physical quantities would remain constant for the sphere?

- (1) Moment of inertia
- (2) Rotational kinetic energy
- (3) Angular velocity
- (4) Angular momentum

Ans. (4)

128. The moment of the force, $\vec{F} = 4\hat{i} + 5\hat{j} - 6\hat{k}$ at (2,0,-3) , about, the point (2, -2, -2) is given by

- (1) $-4\hat{i} - \hat{j} - 8\hat{k}$ (2) $-7\hat{i} - 8\hat{j} - 4\hat{k}$
- (3) $-8\hat{i} - 4\hat{j} - 7\hat{k}$ (4) $-7\hat{i} - 4\hat{j} - 8\hat{k}$

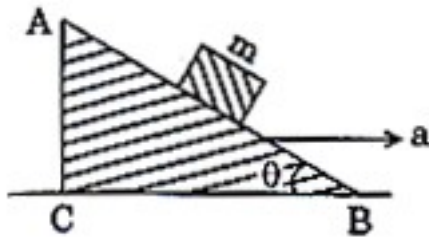
Ans. (4)

129. A toy car with charge q moves on a frictionless horizontal plane surface under the influence of a uniform electric field \vec{E} . Due to the force $q\vec{E}$, its velocity increases from 0 to 6 m/s in one second duration. At that instant the direction of the field is reversed. The car continues to move for two more seconds under the influence of this field. The average velocity and the average speed of the toy car between 0 to 3 second are respectively.

- (1) 1 m/s, 3 m/s (2) 1 m/s, 3.5 m/s
 (3) 2 m/s, 4 m/s (4) 1.5 m/s, 3 m/s

Ans. (1)

130. A block of mass m is placed on a smooth inclined wedge ABC of inclination θ as shown in the figure. The wedge is given an acceleration 'a' towards the right. The relation between a and θ for the block to remain stationary on the wedge is



- (1) $a = \frac{g}{\sin \theta}$ (2) $a = g \cos \theta$
 (3) $a = \frac{g}{\operatorname{cosec} \theta}$ (4) $a = g \tan \theta$

Ans. (4)

131. A student measured the diameter of a small steel ball using a screw gauge of least count 0.001 cm. The main scale reading is 5 mm and zero of circular scale division coincides with 25 divisions above the reference level. If screw gauge has a zero error of -0.004 cm, the correct diameter of the ball is

- (1) 0.525 cm (2) 0.053 cm
 (3) 0.521 cm (4) 0.529 cm

Ans. (4)

132. Three objects, A : (a solid sphere), B : (a thin circular disk) and C : (a circular ring), each have the same mass M and radius R , They all spin with the same angular speed ω about their own symmetry axes. The amounts of work (W) required to bring them to rest, would satisfy the relation

- (1) $W_A > W_B > W_C$ (2) $W_B > W_A > W_C$
 (3) $W_C > W_B > W_A$ (4) $W_A > W_C > W_B$

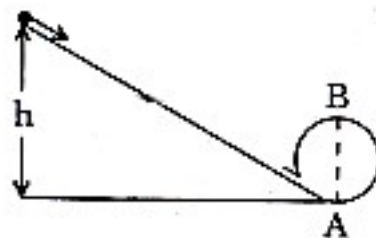
Ans. (3)

133. A moving block having mass m , collides with another stationary block having mass $4m$. The lighter block comes to rest after collision. When the initial velocity of the lighter block is v , then the value of coefficient of restitution (e) will be

- (1) 0.25 (2) 0.8
 (3) 0.5 (4) 0.4

Ans. (1)

134. A body initially at rest and sliding along a frictionless track from a height h (as shown in the figure) just completes a vertical circle of diameter $AB = D$. The height h is equal to



- (1) D (2) $\frac{7}{5}D$
 (3) $\frac{3}{2}D$ (4) $\frac{5}{4}D$

Ans. (4)

135. Which one of the following statements is incorrect?

(1) Limiting value of static friction is directly proportional to normal reaction.

(2) Frictional force opposes the relative motion.

(3) Rolling friction is smaller than sliding friction

(4) Coefficient of sliding friction has dimension of length.

Ans. (4)

136. The correct difference between first and second order reactions is that

(1) the half-life of a first-order reaction does not depend on $[A]_0$; the half-life of a second-order reaction does depend on $[A]_0$

(2) a first-order reaction can be catalysed; a second-order reaction cannot be catalyzed

(3) the rate of a first-order reaction does not depend on reactant concentrations; the rate of second-order reaction does depend on reactant concentrations

(4) the rate of a first-order reaction does depend on reactant concentrations; the rate of a second-order reaction does not depend on reactant concentrations

Ans. (1)

137. Among CaH_2 , BeH_2 , BaH_2 , the order of ionic character is

(1) $\text{CaH}_2 < \text{BeH}_2 < \text{BaH}_2$

(2) $\text{BeH}_2 < \text{BaH}_2 < \text{CaH}_2$

(3) $\text{BeH}_2 < \text{CaH}_2 < \text{BaH}_2$

(4) $\text{BaH}_2 < \text{BeH}_2 < \text{CaH}_2$

Ans. (3)

138. In which case is the number of molecules of water maximum?

(1) 0.18 g of water

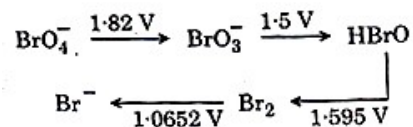
(2) 0.00224 L of water vapours at 1 atm and 273 K

(3) 18 mL of water

(4) 10^{-3} mol of water

Ans. (3)

139. Consider the change in oxidation state of Bromine corresponding to different emf values as shown in the diagram below :



(1) BrO_4^-

(2) Br_2

(3) BrO_3^-

(4) HBrO

Ans. (4)

140. In the structure of ClF_3 , the number of lone pairs of electrons on central atom 'Cl' is

(1) two

(2) four

(3) one

(4) three

Ans. (1)

141. The correct order of N-compounds in its decreasing order of oxidation states is

(1) HNO_3 , NO , NH_4Cl , N_2

(2) HNO_3 , NH_4Cl , NO , N_2

(3) HNO_3 , NO , N_2 , NH_4Cl

(4) NH_4Cl , N_2 , NO , HNO_3

Ans. (3)

142. Which one of the following elements is unable to form MF_6^{3-} ion?

(1) Al

(2) B

(3) Ga

(4) In

Ans. (2)

143. The correct order of atomic radii in group 13 elements is

(1) $\text{B} < \text{Al} < \text{Ga} < \text{In} < \text{Tl}$

(2) $\text{B} < \text{Ga} < \text{Al} < \text{Tl} < \text{In}$

(3) $\text{B} < \text{Al} < \text{In} < \text{Ga} < \text{Tl}$

(4) $\text{B} < \text{Ga} < \text{Al} < \text{In} < \text{Tl}$

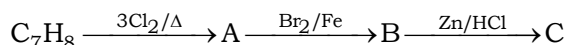
Ans. (4)

153. Which oxide of nitrogen is not a common pollutant introduced into the atmosphere both due to natural and human activity?

- (1) NO_2 (2) N_2O
 (3) N_2O_5 (4) NO

Ans. (3)

154. The compound C_7H_8 undergoes the following reaction:



The product 'C' is

- (1) o-bromotoluene
 (2) 3-bromo-2,4,6-trichlorotoluene
 (3) m-bromotoluene
 (4) p-bromotoluene

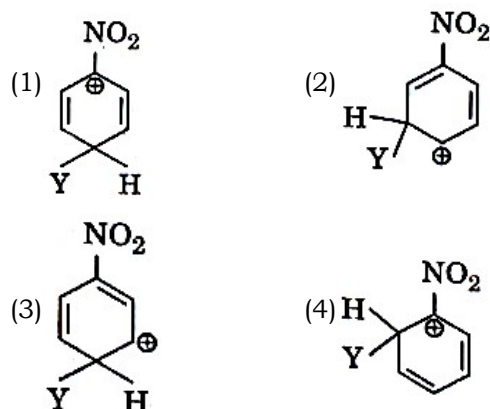
Ans. (3)

155. Which of the following molecules represents the order of hybridization sp^2 , sp^2 , sp , sp from left to right atoms?

- (1) $\text{CH}_2 = \text{CH} - \text{C} \equiv \text{CH}$
 (2) $\text{CH}_2 = \text{CH} - \text{CH} = \text{CH}_2$
 (3) $\text{HC} \equiv \text{C} - \text{C} \equiv \text{CH}$
 (4) $\text{CH}_3 - \text{CH} = \text{CH} - \text{CH}_3$

Ans. (1)

156. Which of the following carbocations is expected to be most stable?



Ans. (2)

157. Which of the following is correct with respect to -I effect of the substituents ?

(R = alkyl)

- (1) $-\text{NR}_2 < -\text{OR} < -\text{F}$

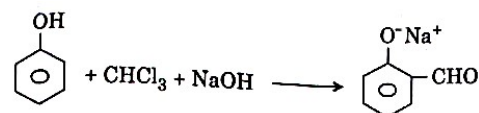
(2) $-\text{NH}_2 > -\text{OR} > -\text{F}$

(3) $-\text{NH}_2 < -\text{OR} < -\text{F}$

(4) $-\text{NR}_2 > -\text{OR} > -\text{F}$

Ans. (1 & 3)

158. In the reaction



the electrophile involved is

- (1) formylation $\left(\overset{\oplus}{\text{C}}\text{HO}\right)$
 (2) dichloromethyl anion $\left(\overset{-}{\text{C}}\text{HCl}_2\right)$
 (3) dichloromethylation $\left(\overset{\oplus}{\text{C}}\text{HCl}_2\right)$
 (4) dichlorocarbene $(:\text{CCl}_2)$

Ans. (4)


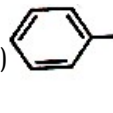

159. Carboxylic acids have higher boiling points than aldehydes, ketones and even alcohols of comparable molecular mass. It is due to their

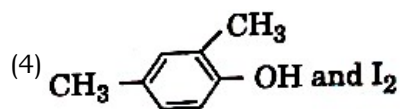
- (1) formation of carboxylate ion
 (2) more extensive association of carboxylic acid via van der Waals force of attraction
 (3) formation of intramolecular H-bonding
 (4) formation of intermolecular H-bonding

Ans. (4)

160. Compound A, $\text{C}_8\text{H}_{10}\text{O}$, is found to react with NaOI (produced by reacting Y with NaOH) and yields a yellow precipitate with characteristic smell.

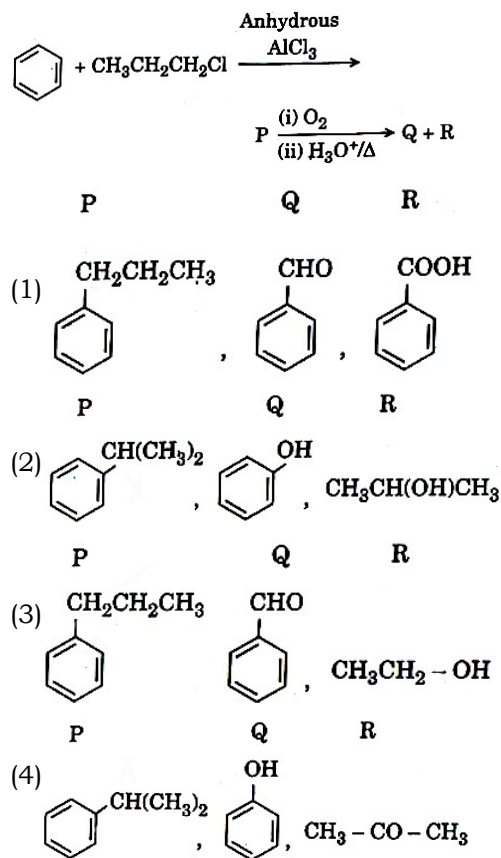
A and Y are respectively

- (1)  $\text{CH}_2 - \text{CH}_2 - \text{OH}$ and I_2
 (2)  $\text{CH} - \text{CH}_3$ and I_2
 |
 OH
 (3) H_3C -  - $\text{CH}_2 - \text{OH}$ and I_2



Ans. (2)

161. Identify the major products P, Q and R in the following sequence of reactions:



Ans. (4)

162. Which of the following compounds can form a zwitterion?

- (1) Acetanilide (2) Benzoic acid
 (3) Aniline (4) Glycine

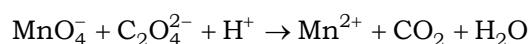
Ans. (4)

163. The correction factor 'a' to the ideal gas equation corresponds to

- (1) volume of the gas molecules
 (2) electric field present between the gas molecules
 (3) density of the gas molecules
 (4) forces of attraction between the gas molecules

Ans. (4)

164. For the redox reaction



the correct coefficient of the reactants for the balanced equation are

- (1) MnO_4^- 2, $C_2O_4^{2-}$ 5, H^+ 16
 (2) MnO_4^- 2, $C_2O_4^{2-}$ 16, H^+ 5
 (3) MnO_4^- 16, $C_2O_4^{2-}$ 5, H^+ 2
 (4) MnO_4^- 16, $C_2O_4^{2-}$ 5, H^+ 2

Ans. (1)

165. When initial concentration of the reactant is doubled, the half-life period of a zero order reaction

- (1) is doubled
 (2) is tripled
 (3) is halved
 (4) remains unchanged

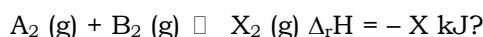
Ans. (1)

166. The bond dissociation energies of X_2 , Y_2 and XY are in the ratio of 1 : 0.5 : 1. ΔH for the formation of XY is -200 kJ mol^{-1} . The bond dissociation energy of X_2 will be

- (1) 100 kJ mol^{-1} (2) 800 kJ mol^{-1}
 (3) 200 kJ mol^{-1} (4) 400 kJ mol^{-1}

Ans. (2)

167. Which one of the following conditions will favour maximum formation of the product in the reaction,



- (1) Low temperature and low pressure
 (2) High temperature and high pressure
 (3) Low temperature and high pressure
 (4) High temperature and low pressure

Ans. (3)

168. Iron exhibits bcc structure at room temperature. Above 900°C , it transforms to fcc structure. The ratio of density of iron at room temperature to that at 900°C (assuming molar mass and atomic radii of iron remains constant with temperature) is

- (1) $\frac{4\sqrt{3}}{3\sqrt{2}}$ (2) $\frac{3\sqrt{3}}{4\sqrt{2}}$
 (3) $\frac{\sqrt{3}}{\sqrt{2}}$ (4) $\frac{1}{2}$

Ans. (2)

169. Consider the following species:

CN^+ , CN^- , NO and CN

Which one of these will have the highest bond order?

- (1) CN^- (2) CN^+
 (3) NO (4) CN

Ans. (1)

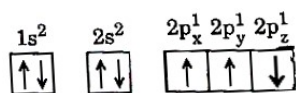
170. Magnesium reacts with an element (X) to form an ionic compound. If the ground state electronic configuration of (X) is $1s^2 2s^2 2p^3$, the simplest formula for this compound is

- (1) MgX_2 (2) Mg_2X
 (3) Mg_2X_3 (4) Mg_3X_2

Ans. (4)

171. Which one is a wrong statement?

- (1) An orbital is designated by three quantum numbers while an electron in an atom is designated by four quantum numbers.
 (2) The electronic configuration of N atom is



- (3) Total orbital angular momentum of electron in 's' orbital is equal to zero
 (4) The value of m for d_{z^2} is zero.

Ans. (2)

172. Following solutions were prepared by mixing different volumes of NaOH and HCl of different concentrations.

- (a) $60\text{mL} \frac{M}{10} \text{HCl} + 40\text{mL} \frac{M}{10} \text{NaOH}$
 (b) $55\text{mL} \frac{M}{10} \text{HCl} + 45\text{mL} \frac{M}{10} \text{NaOH}$
 (c) $75\text{mL} \frac{M}{5} \text{HCl} + 25\text{mL} \frac{M}{5} \text{NaOH}$
 (d) $100\text{mL} \frac{M}{10} \text{HCl} + 100\text{mL} \frac{M}{10} \text{NaOH}$

pH of which one of them will be equal to 1?

- (1) a (2) d
 (3) b (4) c

Ans. (4)

173. On which of the following properties does the coagulating power of an ion depend?

- (1) Size of the ion alone
 (2) Both magnitude and sign of the charge on the ion
 (3) The magnitude of the charge on the ion alone
 (4) The sign of charge on the ion alone

Ans. (2)

174. Given van der Waals constant for NH_3 , H_2 , O_2 and CO_2 are respectively 4.17, 0.244, 1.36 and 3.59, which one of the following gases is most easily liquefied?

- (1) H_2 (2) O_2
 (3) NH_3 (4) CO_2

Ans. (3)

175. The solubility of BaSO_4 in water is $2.42 \times 10^{-3} \text{gL}^{-1}$ at 298 K. The value of its solubility product (K_{sp}) will be

(Given molar mass of $\text{BaSO}_4 = 233 \text{g mol}^{-1}$)

- (1) $1.08 \times 10^{-12} \text{mol}^2\text{L}^{-2}$
 (2) $1.08 \times 10^{-14} \text{mol}^2\text{L}^{-2}$
 (3) $1.08 \times 10^{-10} \text{mol}^2\text{L}^{-2}$
 (4) $1.08 \times 10^{-8} \text{mol}^2\text{L}^{-2}$

Ans. (3)

176. The type of isomerism shown by the complex $[\text{CoCl}_2(\text{en})_2]$ is

- (1) Coordination isomerism
- (2) Ionization isomerism
- (3) Geometrical isomerism
- (4) Linkage isomerism

Ans. (3)

177. Which one of the following ions exhibits d-d transition and paramagnetism as well?

- (1) $\text{Cr}_2\text{O}_7^{2-}$
- (2) MnO_4^-
- (3) CrO_4^{2-}
- (4) MnO_4^{2-}

Ans. (4)

178. Iron carbonyl, $\text{Fe}(\text{CO})_5$ is

- (1) mononuclear
- (2) trinuclear
- (3) tetranuclear
- (4) dinuclear

Ans. (1)

179. Match the metal ions given in Column I with the spin magnetic moments of the ions given in Column II and assign the correct code

Column I

Column II

- | | | | |
|----|------------------|------|------------------|
| a. | CO^{3+} | i. | $\sqrt{8}$ B.M. |
| b. | Cr^{3+} | ii. | $\sqrt{35}$ B.M. |
| c. | Fe^{3+} | iii. | $\sqrt{3}$ B.M. |
| d. | Ni^{2+} | iv. | $\sqrt{24}$ B.M. |
| | | v. | $\sqrt{15}$ B.M. |

- | | a | b | c | d |
|-----|-----|----|-----|-----|
| (1) | i | ii | iii | iv |
| (2) | iv | i | ii | iii |
| (3) | iv | v | ii | i |
| (4) | iii | v | i | ii |

Ans. (3)

180. The geometry and magnetic behaviour of the complex $[\text{Ni}(\text{CO})_4]$ are

- (1) tetrahedral geometry and diamagnetic
- (2) square planar geometry and paramagnetic
- (3) square planar geometry and diamagnetic
- (4) tetrahedral geometry and paramagnetic

Ans. (1)

Dream on !!

