SRI CHAITANYA EDUCATIONAL INSTITUTIONS,INDIA.

A.P,TELANGANA,KARNATAKA,TAMILNADU,MAHARASHTRA,DELHI,RANCHI,CHANDIGARH

SEC :SR ELITE & SR AIIMS Super 60 DATE: 05.01.2019

NEET PART TEST-1 **Max. Marks : 720**

[redacted]

1. The Model **NEET- 2019** is of **3 Hrs** duration.
2. The question paper for NEET-2019 consists of 180 questions comprising 45 questions in Botany, 45 in Zoology, 45 in Physics and 45 in Chemistry for NEET.
3. All questions are of objective type (Multiple choices only)
4. Each question carries four marks.
5. Negative marking: one mark will be deducted for every wrongly answered question.
6. Total Marks 720.
7. The candidates are prohibited from carrying any paper to the examination hall except **HALL TICKET**.
8. No Calculators, Mini-Cards, Watches with Calculators, Pager, Cell Phone, Slide rules or outer aids to calculation will be allowed in the examination hall.
9. **Use Blue/Black Ball Point Pen only** to darken the appropriate circle. Answers marked with pencil would not be evaluated.

- **PART TEST-1 SYLLABUS:**
- **BOTANY:** Diversity in the Living World, Biological Classification, Plant Kingdom, Morphology of flowering plants.
- **ZOOLOGY:** Human Physiology
- **PHYSICS:** Units and measurement, Motion in a straight line, Motion in a plane, Laws of Motion, Work power energy, System of particles and rotational motion, Gravitation.
- **CHEMISTRY:** Atomic structure , Periodic classification of elements, Chemical bonding , Stoichiometry , States of matter, Chemical & Ionic equilibrium, Thermodynamics , Hydrogen and its compounds.

BOTANY:

1. How many of the following properties are the defining characteristics of living organisms ?

Growth, reproduction, metabolism, cellular organisation, consciousness

(1) 2

(2) 3

(3) 4

(4) 5

2. The title '*Alexander Agassiz Professor of Zoology Emeritus*' goes to

(1) P. Maheswari

(2) R. Mishra

(3) E. Mayr

(4) G. N. Ramachandran

3. Each organism that you see, represents a

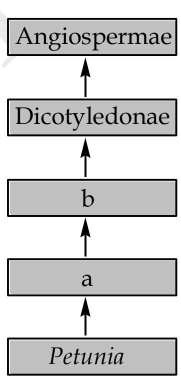
(1) Species

(2) Genus

(3) Population

(4) Family

4. Recognise the following flow diagram and find the correct option according to taxonomic hierarchy.



(1) a – Sapindales, b – Anacardiaceae

(2) a – Polymoniales, b – Convolvulaceae

(3) a – Polymoniales, b – Solanaceae

(4) a – Solanaceae, b – Polymoniales

5. Wheat and mango belong to same

(1) Order

(2) Class

(3) Division

(4) Both 2 and 3

6. Which of the following statements regarding universal rules of nomenclature is wrong ?

(1) Both the words in a biological name, when handwritten are separately underlined.

(2) The first word in a biological name represents the genus and starts with capital letter

(3) The second word denoting the species and starts with small letter.

(4) Biological names are generally in Greek and are written in italics.

7. Which of the following combinations is correct for wheat ?

(1) Genus : *Triticum*, Family : Poaceae, Order : Poales, Class : Dicotyledonae

(2) Genus : *Triticum*, Family : Poaceae, Order : Sapindales, Class : Monocotyledonae

(3) Genus : *Triticum*, Family : Poaceae, Order : Poales, Class : Monocotyledonae

(4) Genus : *Triticum*, Family : Anacardiaceae, Order : Poales, Class : Monocotyledonae

8. Match the columns I and II, and choose the correct combination from the options given.

Column-I	**Column-II**
A) Wheat	**I) Primata**
B) Mango	**II) Diptera**
C) Housefly	**III) Sapindales**
D) Man	**IV) Poales**

(1) A – 1, B – 2, C – 4, D – 3
(2) A – 4, B – 3, C – 2, D – 1
(3) A – 2, B – 4, C – 1, D – 3
(4) A – 3, B – 4, C – 2, D – 1

9. The unique and unified character of plantae of Whittacker is
(1) Non Chlorophyllous autotrophism
(2) Same pattern of alternation of generations
(3) Method of reproduction
(4) Cell wall, mainly made up of cellulose

10. Which of the following is a bacterial disease in plants ?
(1) Late blight of potato
(2) Mosaic disease of tobacco
(3) Citrus canker
(4) Potato spindle tuber disease

11. Which bacteria are most abundant in nature ?
(1) Archaebacteria
(2) Photosynthetic autotrophic bacteria
(3) Chemosynthetic autotrophic bacteria
(4) Heterotrophic bacteria

12. Bacteria multiply mainly by
(1) Fission
(2) Budding
(3) Conjugation
(4) Transduction

13. I) Unicellular, colonial, filamentous, marine or terrestrial forms.
II) Gelatinous sheath around the colonies.
III) Some are heterocystous N_2 fixers.
IV) Blooms in water bodies.
<u>**These above characters are related to**</u>
(1) Archaebacteria
(2) Cyanobacteria
(3) Actinomycetes
(4) Diatoms

14. Select the correct statement from the following.
(1) Dinoflagellates are mostly marine.
(2) Euglenoids are strictly autotrophs.
(3) Amoeboid protozoans have proteinaceous pellicle.
(4) Flagellated protozoans have cavity (or) gullet.

15. What is common among *Agaricus*, rust and smut fungi ?
(1) All are pathogens
(2) All have long gap between plasmogamy and karyogamy
(3) All have much elapsed time between karyogamy and meiosis
(4) Both 2 and 3

16. Dikaryophase not occurs in

(1) Ascomycetes

(2) Phycomycetes

(3) Basidiomycetes

(4) Both 1 and 2

17. Asexual spores of fungi are

(1) Ascospores, basidiospores and zoospores

(2) Zoospores, sporangiospores and conidia

(3) Zoospores, oospores and basidiospores

(4) Oospores, ascospores, basidiospores

18. Abnormally folded infectious proteins are

(1) Viroids

(2) Prions

(3) Virions

(4) Virusoids

19. Mycobiont in lichens can

(1) Provide shelter to phycobiont

(2) Absorb mineral nutrients

(3) Absorb water

(4) All of the above

20. Phytophages generally have

(1) ss RNA

(2) ds RNA

(3) ds DNA

(4) ss DNA

21. Which one of the following matches is correct.

1	*Mucor*	Reproduction by conjugation	Ascomycetes
2	*Agaricus*	Parasitic fungus	Basidiomycetes
3	*Phytophthora*	Aseptate mycelium	Basidiomycetes
4	*Alternaria*	Sexual reproduction absent	Deuteromycetes

22. Natural system of classification consider

(1) External and internal features

(2) Ultrastructure and anatomy

(3) Embryology and phytochemistry

(4) All of the above

23. In phaeophyceae, the male gametes are

(1) Pyriform and bear 2 anterior flagella

(2) Pear-shaped and bear 2 lateral unequal flagella

(3) Pyriform and bear 2-8, equal apical flagella

(4) Pear-shaped and bear 2 lateral equal flagella

24. In *Funaria*, meiosis occurs during

(1) Gametogenesis

(2) Spore germination

(3) Sporogenesis

(4) Budding

25. Moss Protonema represents

(1) Gametophytic, Juvenile stage

(2) Sporophytic, Juvenile stage

(3) Gametophytic, Adult stage

(4) Sporophytic, Adult stage

26. Match the columns I and II, and choose the correct combination from the options given.

Column-I	**Column-II**
A) ***Selaginella***	I) Psilopsida
B) ***Equisetum***	II) Lycopsida
C) ***Adiantum***	III) Sphenopsida
D) ***Psilotum***	IV) Pteropsida

	A	B	C	D
(1)	II	IV	I	III
(2)	I	IV	III	II
(3)	II	I	IV	III
(4)	II	III	IV	I

27. Which of the following do not belong to spermatophyta

(1) *Ficus* and *Pinus*

(2) *Salvia* and *Sequoia*

(3) *Funaria* and *Fern*

(4) *Pyrus* and *Pisum*

28. Among plant kingdom, *Cycas* has the

(1) Largest spermatozoids

(2) Largest egg

(3) Largest ovule

(4) All of the above

29. *Cycas* have 2 cotyledons but not included in dicotyledons because it has

(1) No vessels

(2) No seeds

(3) Naked seeds

(4) Flowers

30. *The number of sporophylls in each flower of Brassica,Pisum,Solanum and lily respectively are*

(1) 8,10,7,6

(2) 8,11,7,9

(3) 9,7,11,8

(4) 2,1,2,3

31. Consider the following statements regarding gymnosperms and choose the correct option.

I) The male and female gametophytes have an independent existence.

II) The multicellular female gametophyte is retained within the megasporangium.

III) Heterosporous, spermatophytic, archegoniates.

(1) I and II

(2) I and III

(3) II only

(4) II and III

32. Select out the correct match.

(1) Spermatophytes – Diplobiontic life cycle

(2) Pteridophytes – Diplontic life cycle

(3) Bryophytes – Haplo-diplontic life cycle

(4) Red algae – Diplo-haplontic life cycle

33. *Selaginella* and *Salvinia* are considered to represent a significant step towards evolution of seed habit because

(1) Gametophytes are monoecious.

(2) Male gametes are motile.

(3) Embryo develops in female gametophyte which is retained on parent sporophyte.

(4) Male gametophyte is retained in the parental body for ever.

34. Which one of the following is wrongly matched ?

(1) *Spirogyra* – Motile gametes

(2) *Sargassum* – Chlorophyll c

(3) *Porphyra* – Non-motile gametes

(4) *Nostoc* – Heterocysts

35. Which of the following have dioecious gametophytes ?

I) *Marchantia* **II) *Selaginella***

III) *Cycas* **IV) *Salvinia***

(1) I and II only

(2) II and III only

(3) III and IV only

(4) All the above

36. Pneumatophores are useful in

(1) Respiration

(2) Transpiration

(3) Guttation

(4) Protein synthesis

37. Match the columns I and II, and choose the correct combination from the options given.

Column-I	**Column-II**
A) *Colocasia*	**1) Flattened stem**
B) Watermelon	**2) Stem thorn**
C) *Opuntia*	**3) Storage stem**
D) *Euphorbia*	**4) Stem tendril**
E) *Bougainvillea*	**5) Fleshy cylindrical stem**

(1) A – 3, B – 4, C – 5, D – 1, E – 2

(2) A – 3, B – 2, C – 1, D – 5, E – 4

(3) A – 4, B – 2, C – 5, D – 1, E – 3

(4) A – 3, B – 4, C – 1, D – 5, E - 2

38. Modified leaves with photosynthetic activity are found in

(1) *Nepenthes*

(2) *Pisum sativum*

(3) *Cactus*

(4) 1 and 2

39. Read the following statements and find out how many are incorrect statements.

a) Mustards have parietal placentation in syncarpus gynoecium.

b) China rose has superior ovary, twisted aestivation and axile placentation.

c) Pea flowers have vexillary aestivation and diadelphous stamens.

d) Chilli flowers have radial symmetry, epipetalous stamens and monocarpellary gynoecium.

e) Lily flowers are actinomorphic with axile placentation and imbricate aestivation.

(1) 3

(2) 1

(3) 4

(4) 2

40. Match the columns I and II, and choose the correct combination from the options given.

Column-I	**Column-II**
A) Epipetalous	**1) *Sesbania***
B) Epiphyllous	**2) China rose**
C) Monoadelphous	**3) Lily**
D) Diadelphous	**4) Citrus**
E) Polyadelphous	**5) *Ashwagandha***

(1) A – 2, B – 4, C – 1, D – 5, E – 3

(2) A – 5, B – 3, C – 2, D – 4, E – 1

(3) A – 1, B – 5, C – 2, D – 3, E – 4

(4) A – 5, B – 3, C – 2, D – 1, E - 4

41. Drupe fruit develops from

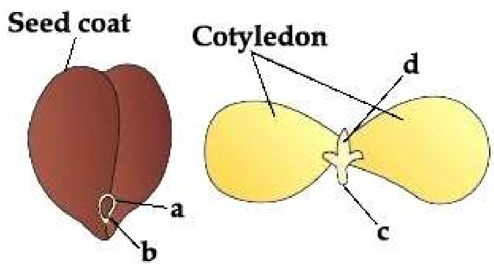
(1) Monocarpellary superior ovary

(2) Monocarpellary inferior ovary

(3) Monocarpellary half superior ovary

(4) Bicarpellary superior ovary

42. Recognise the figure and find out the correct matching.



(1) a – Hilum, b – Micropyle, c – Radicle, d – Plumule

(2) a – Hilum, b – Micropyle, d – Radicle, c – Plumule

(3) b – Hilum, a – Micropyle, c – Radicle, d – Plumule

(4) b – Hilum, a – Micropyle, d – Radicle, c - Plumule

43. Brinjal, Potato, Tomato, Onion, Ginger belong to

(1) A single family

(2) Four genera

(3) Five genera

(4) Same genus

44. Flower of Fabaceae is

(1) Complete, zygomorphic, pentamerous

(2) Complete, actinomorphic, tetracyclic

(3) Incomplete, zygomorphic, pentacyclic

(4) Incomplete, actinomorphic, pentamerous

45. Among china rose, mustard, brinjal, potato, guava, cucumber, onion and tulip, how many plants have superior ovary ?

(1) Six

(2) Three

(3) Four

(4) Five

ZOOLOGY

46. Uricotelic mode of passing out nitrogenous wastes is found in

(1) Insects and amphibians

(2) Reptiles and birds

(3) Birds and annelids

(4) Amphibians and reptiles

47. Presence of excess of urea in blood is referred to as

(1) Uremia

(2) Hematuria

(3) Low Blood Urea Nitrogen (BUN)

(4) Polyurea

48. Maximum reabsorption of the glomerular filtrate occurs in:

(1) Distal convoluted tubule

(2) Proximal convoluted tubule

(3) Bowman's capsule

(4) Descending limb of Henle's loop

49. A deficiency of ACTH secretion would greatly diminish

(1) The synthesis of Adrenaline

(2) The synthesis of testosterone in a man

(3) The secretion of cortisol

(4) The secretion of estradiol

50. Though the heart is auto excitable, its function can be moderated by

(1) Neural mechanism only

(2) Neural and hormonal mechanism

(3) Hormonal mechanism only

(4) By only nodal tissue (SAN and AVN)

51. Which of the following is the correct sequence in which urine flows through the kidney toward the urinary bladder?

(1) Renal pelvis, major calyx, minor calyx, duct of Bellini, ureter.

(2) Duct of Bellini, minor calyx, major calyx, renal pelvis, ureter.

(3) Minor calyx, major calyx, duct of Bellini, renal pelvis, ureter.

(4) Duct of Bellini, major calyx, minor calyx, ureter, renal pelvis.

52. What is the process called by which materials are returned to the blood from the nephric filtrate?

(1) Non-electrolyte selectivity

(2) Ultrafiltration

(3) Selective reabsorption

(4) Tubular secretion

53. The Christmas disease is another name for

(1) Hemophilia B

(2) Hepatitis B

(3) Down's syndrome

(4) Hemophilia A

54. Growth hormone

(1) is stimulated by somatostatin.

(2) Stimulates protein synthesis

(3) is released by the hypothalamus

(4) is secreted by neuroendocrine cells of hypothalamus

55. Arteries are best defined as the vessels which

(1) Carry blood from one visceral organ to another visceral organ

(2) Supply oxygenated blood to different organs

(3) Carry blood away from the heart to different organs

(4) Break up into capillaries which reunite to form a vein

56. How do sympathetic neural signals affect the working of the heart?

(1) Reduce both heart rate and cardiac output

(2) Heart rate is increased without affecting the cardiac output

(3) Both heart rate and cardiac output increase

(4) Heart rate decreases but cardiac output increases

57. What is a myocardial infarction?

(1) Heart failure

(2) Heart attack

(3) Cardiomegaly

(4) All of the above

58. Left ventricular end-diastolic volume is:

(1) 70 ml

(2) 50 ml

(3) 60 ml

(4) 120 ml

59. What do you mean by a functional syncytium?

(1) A parasympathetic neuron terminating at AV Node

(2) A cluster of pacemaker cells in the right atrium, present in <20% of the population

(3) A group of cardiac myocytes that function as a single unit

(4) A rare extra blood vessel connecting the left and right coronary arteries

60. Anatomical dead space is represented by

(1) Upper respiratory tract

(2) Space between two pleural membranes

(3) Lower respiratory tract

(4) Apical parts of both the lungs

61. Both epinephrine and cortisol are secreted in response to stress. Which of the following statements is also true for both of these hormones?

(1) They act to increase blood glucose

(2) Their receptors are on the surfaces for target cells

(3) They are secreted by the adrenal cortex

(4) Their secretion is stimulated by adrenocorticotropin

62. Volume of air left after maximum forceful expiration in human lung is

(1) Total lung capacity

(2) Residual volume

(3) Vital capacity

(4) Tidal volume

63. The lowest pO_2 is found in

(1) Expired air

(2) Venous blood

(3) Atmospheric air

(4) Alveolar air

64. If the lung were punctured, which of the following would happen?

(1) The lung would collapse on the side of the puncture.

(2) Both the lung and the chest wall would collapse on the side of the puncture.

(3)Inspiratory signals from medulla become irregular.

(4) Interpleural pressure decrease further

65. The amygdala primarily deals with:

(1) Emotions and survival instincts

(2) Body movement

(3) Memory

(4) Day night cycles

66. When a neuron is in resting state, i.e., not conducting any impulse, the axonal membrane is

(1) Comparatively more permeable to K^+ ions and nearly impermeable to Na^+ ions

(2) Comparatively more permeable to Na^+ ions and nearly impermeable to K^+ ions

(3) Equally permeable to both Na^+ and K^+ ions

(4) Impermeable to both Na^+ and K^+ ions

67. Find out the correct statement / statements about the food pipe:

i) The oesophagus is lined by stratified squamous epithelium cell

ii) The submucosa of oesophagus contains glands for secreting digestive enzymes.

iii) The muscular coat of oesophagus consists of two layers

(1) (i), (ii) and (iii) are correct

(2) (i) and (iii) are correct

(3) (ii) and (iii) are correct

(4) If only (iii) is correct

68. The mode of action of steroid hormones involves

(1) a second messenger.

(2) modification of enzyme activity.

(3) stimulation of DNA replication.

(4) stimulation of mRNA transcription.

69. Paneth cells are found in

(1) Crypts of Lieberkuhn

(2) Peyer’s patches

(3) Brunner’s glands

(4) Islets of Langerhans

70. Which part of gut secretes the hormone secretin?

(1) stomach

(2) oesophagus

(3) ileum

(4) duodenum.

71. In humans caecum is

(1) a pouch connected to the junction of the small and large intestines

(2) It is separated from the ileum by the ileocecal valve

(3) Its distal end is degenerated, remnant being represented by appendix

(4) All of the above

72. Prolonged deficiency of nicotinic acid (niacin) causes

(1) pellagra

(2) xerophthalmia

(3) osteomalacia

(4) anaemia.

73. Islets of Langerhans in pancreas are responsible for

(1) Exocrine secretion

(2) Endocrine secretion

(3) Both exocrine and endocrine secretion

(4) Secreting pancreatic enzymes

74. Which statement about the structure of skeletal muscle is true?

(1) The light bands of the sarcomere are the regions where actin and myosin filaments overlap.

(2) When a muscle contracts, the I (Light Band) bands of the sarcomere remains unchanged

(3) The myosin filaments are anchored to the Z lines

(4) When a muscle contracts, the H zones of the sarcomere shorten.

75. The all-or-none response means that

(1) all of the muscles in a region contract together.

(2) all of the muscle fibers within a muscle contract together.

(3) when a muscle fiber contracts, it contracts completely.

(4) when a muscle fiber contracts, all of its ATP is changed to ADP

76. All of the following are bones of the thorax EXCEPT

(1) Lunate

(2) sternum

(3) true ribs

(4) false ribs

77. Total number of bones in left upper-limb (forelimb) of man is

(1) 60

(2) 30

(3) 26

(4) 34

78. Acetabulum forms

(1) Shoulder joint

(2) Hip joint

(3) Knee joint

(4) Elbow joint

79. One of these pairs is NOT correctly matched

(1) Myxedema – Puffiness around eyes

(2) Cretinism – Mental retardation

(3) Graves's disease – Exophthalmos

(4) Addison's disease – Truncal obesity

80. ATPase enzyme needed for muscle contraction is located in

(1) Actinin

(2) Troponin

(3) Myosin

(4) Actin

81. The neurotransmitter mostly used at the neuromuscular junction of skeletal muscles is

(1) dopamine

(2) acetylcholine

(3) noradrenaline

(4) GABA

82. Which of the following is NOT an example of a glial cell?

(1) Schwann cells

(2) Oligodendroglia

(3) Astrocytes

(4) Kupffer cells

83. Electrical impulses gather and accumulate in which part of a neuron, in order to initiate an action potential?

(1) Dendrites

(2) Axon hillock

(3) Axon terminal branches

(4) Node of Ranvier

84. The vital centers for the control of visceral activities such as heart rate, breathing, blood pressure, swallowing, and vomiting are located in the:

(1) hypothalamus

(2) medulla oblongata

(3) cerebrum

(4) midbrain

85. The main function of muscle spindles is to

(1) pass neural information evenly to all parts of the muscle.

(2)act as stretch receptors

(3) bind myofibrils together in bundles.

(4) enable contraction of the muscles.

86. Addison's disease occurs due to

(1) Hypersecretion of adrenal cortical hormones

(2) Hyposecretion of adrenal cortical hormones

(3) Hypersecretion of ACTH

(4) Hyposecretion of hormones of adrenal medulla

87. Human eye has three different types of cones which possess.

(1) Their own characteristic photopigments that respond to red, green, blue lights

(2) Only one type of photopigment, Rhodopsin

(3) Only one type of photonpigment, cyanopsin

(4) Only Rhodopsin, which can identify all the three basic colours

88. Which part of the human internal ear plays negligible role in hearing as such but is otherwise very much required for equilibrium?

(1) Vestibular apparatus

(2) Ear ossicles

(3) Eustachian tube

(4) Organ of Corti

89. Which one of the following belongs to hind-brain?

(1) Cerebellum

(2) Hypothalamus

(3) Spinal cord

(4) Corpus callosum

90. The nerve centers which control the body temperature and the urge for eating are contained in the

(1) thalami

(2) hypothalamus

(3) pons Varolii

(4) cerebellum

PHYSICS

91. If the unit of force were 10N, that of power were 1 MW and that of time were 1 millisecond then the unit of length would be

(1) 1 m

(2) 100 m

(3) 10^3

(4) 10^{-2} m

92. The position of a particle at time 't' is given by the equation : $x(t)=\frac{V_0}{A}\left(1-e^{At}\right)$

V_0 **= constant and A > 0. The dimensions of** v_0 **and A are respectively**

(1) M^0LT^0 and T^{-1}

(2) M^0LT^{-1} and LT^{-2}

(3) M^0LT^{-1} and T

(4) M^0LT^{-1} and T^{-1}

93. Two resistors of $10K\Omega$ and $20K\Omega$ are connected in series. If tolerance of each resistor is 10% then tolerance of the combination will be

(1) 5%

(2) 10%

(3) 15 %

(4) 20 %

94. In a simple pendulum experiment, length is measured as 31.4 cm with an accuracy of 1 mm. The time for 100 oscillations of pendulum is 112s using a watch of 1s resolution. The percentage accuracy in g is

(1) 1

(2) 1.2

(3) 1.8

(4) 2.1

95. If the unit of mass is α kg, the unit of length β metre and the unit of time is 'γ' second, the magnitude of calorie in the new system is (1 Cal = 4.2 J)

(1) $4.2\alpha^2\beta^2\gamma^2$ new units

(2) $4.2\alpha^{-1}\beta^{-2}\gamma^2$ new units

(3) $\alpha^{-1}\beta^{-2}\gamma^2$ new units

(4) $\frac{1}{4.2}\alpha^{-1}\beta^{-2}\gamma^2$ new units

96. If pressure P, velocity of light C and acceleration due to gravity g are chosen as fundamental units, then dimensional formula of mass is

(1) pc^3g^{-4}

(2) $pc^{-4}g^3$

(3) pc^4g^{-3}

(4) pc^4g^3

97. A particle moves along a straight line such that its displacement at any time t is given by $s=\left(t^3-6t^2+3t+4\right)$ metres. The velocity when the acceleration is zero is

(1) 3 m/s

(2) 42 m/s

(3) -9 m/s

(4) -15 m/s

98. A body is projected vertically up with a velocity $50\,ms^{-1}$. Distance travelled in 6th second is $\left[g=10\,ms^{-2}\right]$

(1) 5 m

(2) 10 m

(3) 15 m

(4) 20 m

99. A helicopter is ascending vertically with a speed of $8.0\,ms^{-1}$. At a height of 12 m above the earth, a package is dropped from its window. How much time does it taken for the package to reach the ground?

(1) 1.23 s

(2) 3.23 s

(3) 5. 83 s

(4) 2.53 s

100. Wind is blowing from the south at $5\,ms^{-1}$. To a cyclist it appears to be blowing from the east at $5\,ms^{-1}$. The velocity of the cyclist is __________

(1) $5\sqrt{2}ms^{-1}$ towards north-west

(2) $5\sqrt{2}ms^{-1}$ towards north-east

(3) $5\sqrt{2}ms^{-1}$ towards south-west

(4) $5\sqrt{2}ms^{-1}$ towards south-east

101. A man can swim in still water at a speed of 6 kmph and he has to cross the river and reach just opposite point on the other bank. If the river is flowing at a speed of 3 kmph, he has to swim in the direction

(1) 30^o with the river flow

(2) 60^o with river flow

(3) 135^o with the river flow

(4) 120^o with the river flow

102. A body is projected with velocity u such that its horizontal range and maximum vertical heights are same. The maximum heights reached by it is

(1) $\frac{u^2}{2g}$

(2) $\frac{3u^2}{4g}$

(3) $\frac{16u^2}{17g}$

(4) $\frac{8u^2}{17g}$

103. A body is thrown horizontally from the top of a tower. It reaches the ground after 4s at an angle 45^o to the ground. The velocity of projection is

(1) $9.8\ ms^{-1}$

(2) $19.6\ ms^{-1}$

(3) $29.4\ ms^{-1}$ \

(4) $39.2\ ms^{-1}$

104. A car is moving with a speed of $30\ ms^{-1}$ on a circular path of radius 500 m. If its speed is increasing at the rate of $2\ ms^{-1}$, the net acceleration of the car is

(1) $3.6\ ms^{-2}$

(2) $2.7\ ms^{-2}$

(3) $1.8\ ms^{-2}$

(4) $2\ ms^{-2}$

105. A ball suspended by a thread swings in a vertical plane so that its acceleration in the extreme position and lowest position are equal. The angle θ of the thread deflection in the extreme position will be

(1) $Tan^{-1}(2)$

(2) $Tan^{-1}(\sqrt{2})$

(3) $Tan^{-1}(1/2)$

(4) $2Tan^{-1}(1/2)$

106. A particle of mass 1 kg is projected at an angle of 30^o with horizontal with velocity $40ms^{-1}$. The change in linear momentum of the particle after time t = 1s will be $\left(g=10ms^{-2}\right)$

(1) $7.5\ kg\,ms^{-1}$

(2) $15\ kg\,ms^{-1}$

(3) $10\ kg\,ms^{-1}$

(4) $20\ kg\,ms^{-1}$

107. A gun of mass M fires a bullet of mass m with a velocity v relative to the gun. The average force required to bring the gun to rest in 0.5 sec. is

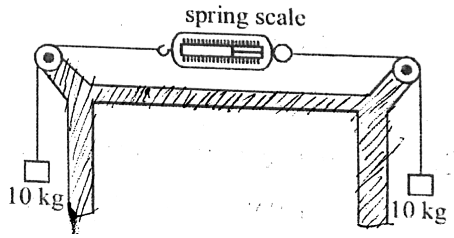
(1) $\frac{2Mmv}{M+m}$

(2) $\frac{Mmv}{2(M+m)}$

(3) $\frac{3Mmv}{2(M+m)}$

(4) $\frac{Mmv}{(M+m)}$

108. Two 10 kg bodies are attached to a spring balance as shown in figure. The reading of the balance will be

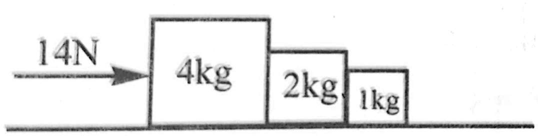


(1) $20 kg - wt$
(2) $10 kg - wt$
(3) Zero
(4) $5 kg - wt$

109. The apparent weight of man inside a lift moving up with certain acceleration is 900N. When the lift is coming down with the same acceleration apparent weight is found to be 300N. The mass of the man is $\left(g = 10 ms^{-2}\right)$

(1) 45 kg
(2) 60 kg
(3) 75 kg
(4) 80 kg

110. Three blocks A, B and C, of masses 4 kg, 2kg and 1 kg respectively, are in contact on a frictionless surface, as shown. If a force of 14 N is applied on the 4 kg block, then the contact force between A and B is :



(1) 2 N
(2) 6 N
(3) 8 N
(4) 18 N

111. A block of weight 100N is lying on a rough horizontal surface. If coefficient of friction is $1/\sqrt{3}$, the least possible force that can move the block is

(1) $\frac{100}{\sqrt{3}}$
(2) $100\sqrt{3}$
(3) $50\sqrt{3}$
(4) 50 N

112. A block of mass 1 kg lies on a horizontal surface in the truck, the coefficient of friction between the block and the surface is 0.6. If the acceleration of the truck is $5 ms^{-2}$ the frictional force acting on the block is

(1) 2 N
(2) 5 N
(3) 3 N
(4) 6 N

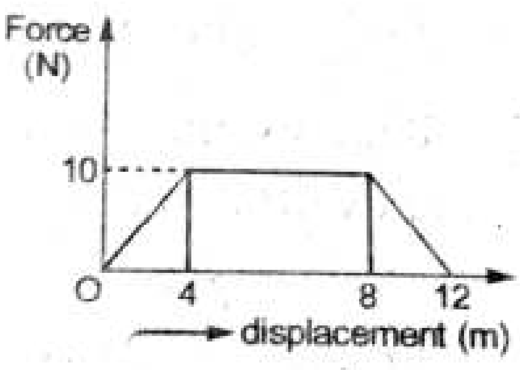
113. A block slides down a slope of angle θ with constant velocity. It is then projected up with a velocity of $10 ms^{-1}$, $g = 10 ms^{-2}$ & $\theta = 30^{\circ}$. The maximum distance it can go up the plane before coming to stop is

(1) 10m
(2) 5m
(3) 4m
(4) 15m

114. Two point size bodies of same mass are knotted to a horizontal string one at the end, and the other at the mid point of it. The string is rotated in horizontal plane with the other end as centre. If T is the tension is the string between centre of circles and first body then the tension in the string between the two bodies is

(1) $\frac{T}{2}$
(2) 2T
(3) $\frac{2T}{3}$
(4) $\frac{3T}{2}$

115. A particle of mass 0.1 kg is subjected to a force which varies with distance as shown in figure. If starts its journey from rest at x = 0, then its velocity at x = 12 m is :



(1) 0

(2) $20\sqrt{2}m/s$

(3) $20\sqrt{3}m/s$

(4) $40m/s$

116. Two bodies of masses 4 kg and 16kg are at rest. The ratio of times for which the same force must act on them to produce the same kinetic energy in both of them is

(1) 1 : 4

(2) 2 : 1

(3) 1 : 2

(4) 4 : 1

117. A motor of power P_0 is used to deliver water at a certain rate through a given horizontal pipe. To increase the rate of flow of water through the same pipe n times, the power of the motor is increased to P_1. The ratio of P_1 to P_0 is :

(1) n : 1

(2) $n^2:1$

(3) $n^3:1$

(4) $n^4:1$

118. The velocity of a body revolving in a vertical circle of radius 'r' at the lowest point $\sqrt{7gr}$. The ratio of maximum to minimum tensions in the string is

(1) 8 : 1

(2) 4 : 1

(3) $\sqrt{7}:1$

(4) $1:\sqrt{7}$

119. A body of mass 6kg travelling with a velocity 10 m/s collides head – on and elastically with a body of mass 4kg travelling at a speed 5 m/s in opposite direction. The velocity of the second body after the collision is

(1) 0 m/s

(2) 6 m/s

(3) 8 m/s

(4) 13 ms^{-1}

120. A ball impings directly upon another ball at rest and is itself brought to rest by the impact. If half of initial kinetic energy is destroyed in the collision, the coefficient of restitution is

(1) 0.3

(2) 0.4

(3) 0.5

(4) 0.6

121. A ball A moving with a certain velocity collides, with another ball B of the same mass at rest. If the coefficient of restitution is e, the ratio of the velocities of A and B just after the collision is

(1) $\frac{1+e}{1-e}$

(2) $\frac{1+e}{2}$

(3) $\frac{1-e}{2}$

(4) $\frac{1-e}{1+e}$

122. Two balls of equal masses are thrown at the same time in vacuum. While they are in vacuum, the acceleration of their centre of mass

(1) Depends on masses of the balls

(2) Depends on direction of motion of the balls

(3) Depends on speeds of the balls

(4) Is equal to acceleration due to gravity

123. A uniform metre stick is placed vertically on a horizontal frictionless surface and released. As the stick is in motion, the centre of mass moves

(1) Vertically up

(2) Vertically down

(3) In a parabolic path

(4) Horizontally

124. Six identical particles each of mass m are arranged at the corners of a regular hexagon of side length a. If the mass of one of the particle is doubled, the shift in the centre of mass is

(1) a

(2) $\frac{6a}{7}$

(3) $\frac{a}{7}$

(4) $\frac{a}{\sqrt{3}}$

125. The radius of gyration of body about an axis at a distance of 4 cm from its centre of mass is 5 cm. The radius of gyration about a parallel axis through centre of mass is

(1) 2 cm

(2) 5 cm

(3) 4 cm

(4) 3 cm

126. Three identical rings, each of mass M and radius R are placed in the same plane touching each other such that their centers form the vertices of an equililateral triangle. The M.I of the system about an axis passing through center of one of the rings and perpendicular to its plane is

(1) $\frac{MR^2}{2}$

(2) MR^2

(3) $\frac{5}{2}MR^2$

(4) $11MR^2$

127. A ballet dancer spins about a vertical axis at 60 rpm with his arms closed. Now he stretches his arms such that M.I increases by 50%. The new speed of revolution is

(1) 80 rpm

(2) 40 rpm

(3) 90 rpm

(4) 30 rpm

128. A constant torque of 1000 Nm turns a wheel of M.I 200 kg m^2 about an axis through centre. The angular velocity after 3s is (wheel is initially at rest)

(1) 15 $rad\ s^{-1}$

(2) 22 $rad\ s^{-1}$

(3) 28 $rad\ s^{-1}$

(4) 60 $rad\ s^{-1}$

129. A point sized sphere of mass 'm' is suspended from a point using a string of length '*l*'. It is then pulled to a side till the string is horizontal and released. As the mass passes through the position where the string is vertical, magnitude of its angular momentum about point of suspension is

(1) $ml\sqrt{gl}$

(2) $ml\sqrt{2gl}$

(3) $ml\sqrt{\frac{gl}{2}}$

(4) $ml\sqrt{3gl}$

130. When a hollow sphere is rolling without slipping on a rough horizontal surface then the percentage of its total K.E. which is Translational is

(1) 72%

(2) 28%

(3) 60%

(4) 40%

131. P is a point at a distance r from the centre of a spherical shell of mass M and radius a, where r < a. The gravitational potential at P is

(1) $-\frac{GM}{r}$

(2) $-\frac{GM}{a}$

(3) $-GM\frac{r}{a^2}$

(4) $-GM\left(\frac{a-r}{a^2}\right)$

132. Two satellites A & B move round the earth in the same orbit. The mass of B is twice that of A, then

(1) Speed of A & B are equal

(2) PE of (earth +A) = PE of (earth + B)

(3) KE of A & B are equal

(4) Total energy of (earth + A) = Total energy of (earth + B)

133. If an astronaut comes out of the artificial satellite, then

(1) He flies off tangentially

(2) He falls to the earth

(3) He performs SHM

(4) He continues to move along the satellite in the same orbit

134. The altitude at which the weight of a body is only 64% of its weight on the surface of the earth is (Radius of the earth is 6400 km)

(1) 1600 m

(2) 16 m

(3) 160 km

(4) 1600 km

135. A satellite is revolving very close to a planet of density D. The time period of revolution of that planet is

(1) $\sqrt{\frac{3\pi}{DG}}$

(2) $\left(\frac{3\pi}{DG}\right)^{3/2}$

(3) $\sqrt{\frac{3\pi}{2DG}}$

(4) $\sqrt{\frac{3\pi G}{D}}$

CHEMISTRY

136. The orbital angular momentum of an electron in 2s-orbital is :

(1) $+\frac{1}{2}.\frac{h}{2\pi}$

(2) Zero

(3) $\frac{h}{2\pi}$

(4) $\sqrt{2}.\frac{h}{2\pi}$

137. Bohr's model can explain :

(1) Spectrum of hydrogen atom only

(2) Spectrum of atom or ion having one electron only

(3) Spectrum of hydrogen molecule

(4) Solar spectrum

138. What will be the wavelength of a ball of mass 0.1 kg moving with a velocity of $10ms^{-1}$?

(1) $6.626\times10^{-34}m$

(2) $6.626\times10^{-30}m$

(3) $3.313\times10^{-34}m$

(4) $3.313\times10^{-30}m$

139. Statement A : Emission spectrum is produced due to the transition of an electron from M shell to L shell
Statement B : The ratio of energy to frequency of a photon is $6.625\times10^{-27}erg.\text{sec}$.

(1) A is true and B is false

(2) A is false and B is true

(3) Both A and B are true

(4) Both A and B are false

140. The correct energy order is

(1) $E_{2s}(H)>E_{2s}(Li)>E_{2s}(Na)>E_{2s}(K)$

(2) $E_{2s}(K)>E_{2s}(Na)>E_{2s}(Li)>E_{2s}(H)$

(3) $E_{2s}(H)>E_{2s}(Na)>E_{2s}(Li)>E_{2s}(K)$

(4) $E_{2s}(K)>E_{2s}(Li)>E_{2s}(Na)>E_{2s}(H)$

141. Atomic radii of fluorine and neon in angstrom units are respectively :

(1) 1.60 and 1.60

(2) 0.72 and 1.60

(3) 0.72 and 0.72

(4) None of these

142. Which of the following transitions involves maximum energy?

(1) $M^{-}(g)\rightarrow M(g)$

(2) $M^{2+}(g)\rightarrow M^{3+}(g)$

(3) $M^{+}(g)\rightarrow M^{2+}(g)$

(4) $M(g)\rightarrow M^{+}(g)$

143. Incorrect statement among the following is:

(1) The first ionization enthalpy of Al is less than the first ionization enthalpy of Mg

(2) The second ionization enthalpy of Mg is greater than the second ionization enthalpy of Na

(3) The first ionization enthalpy of Na is less than the first ionization enthalpy of Mg.

(4) The first ionization enthalpy of Nitrogen is greater than the first ionization enthalpy of Oxygen.

144. The elements with atomic numbers 10, 18, 36, 54 and 86 are all

(1) Halogens

(2) Inert gases

(3) Alkali metals

(4) d-block elements

145. Polarisation is the distortion of the shape of an anion by the cation. Which of the following statements is correct?

(1) Maximum polarization is done by a cation of high charge

(2) A large cation is likely to bring large degree of polarization

(3) A smaller anion is likely to undergo a high degree of polarization

(4) Minimum polarisation is done by a cation of small size

146. Which atomic orbitals are involved in hybridization of central atom in square planar complex ?

(1) s, p_x, p_y, p_z

(2) s, p_x, p_y, d_{z^2}

(3) $s, p_x, p_y, d_{x^2-y^2}$

(4) s, p_x, p_y, d_{xy}

147. Which of the following statements is true about $\left[Cu\left(NH_3\right)_4\right]SO_4$?

(1) It has coordinate and covalent bonds only

(2) It has only coordinate bonds

(3) It has only electrovalent bonds

(4) It has electrovalent, covalent as well as coordinate bonds

148. The paramagnetic species among the following is

(1) Be_2

(2) B_2

(3) C_2

(4) N_2

149. A helium atom is two times heavier than a hydrogen molecules. At 298K, the average kinetic energy of helium atom is

(1) Half that of hydrogen molecule

(2) Two times that of hydrogen molecule

(3) Four times that of hydrogen molecule

(4) Same as that of hydrogen molecule

150. The density of a gas is found to be $5.46 g/dm^3$ at 27°C under 2 bar pressure. Its density at STP is

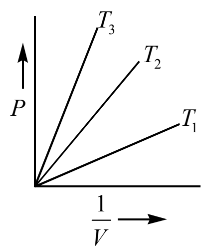
(1) $4.11 g/dm^3$

(2) $3.04 g/dm^3$

(3) $6.83 g/dm^3$

(4) $8.16 g/dm^3$

151.



correct relation is

(1) $T_1 > T_2 > T_3$

(2) $T_2 > T_3 > T_1$

(3) $T_3 > T_1 > T_2$

(4) $T_3 > T_2 > T_1$

152. RMS speed of SO_2 molecule at 400 K is equal to RMS speed of CH_4 molecule at

(1) 400 K

(2) 1600 K

(3) 100 K

(4) 200 K

153. The gas that shows +ve deviation from ideal behavior even at moderate pressure is

(1) CH_4

(2) NH_3

(3) CO

(4) H_2

154. A bulb of unknown volume 'V' Contains an ideal gas at 2 atm pressure. It was connected to another evacuated bulb of volume 0.5 litre through a stopcock. When the stopcock was opened the pressure in each bulb became 0.5 atm. Then V is

(1) 17 ml

(2) 1.7 litres

(3) 0.17 litres

(4) 0.34 litres

155. One mole of N_2H_4 loses 10 mole of electrons to form a new compound Y. Assuming that all nitrogen appear in the new compound, what is the oxidation state of nitrogen? (There is no change in the oxidation state of hydrogen.)

(1) -1

(2) -3

(3) +3

(4) +5

156. In which of the following compounds, iron has lowest oxidation state?

(1) $FeSO_4.(NH_4)_2SO_4.6H_2O$

(2) $K_4\left[Fe(CN)_6\right]$

(3) $Fe_{0.94}O$

(4) $Fe(CO)_5$

157. 2.8g of an element on combustion gives 5.6 grams of its oxide. The element is

(1) C

(2) N

(3) B

(4) S

158. Equivalent weight of ferrous oxalate acting like reducing agent is

(1) $\frac{M}{1}$

(2) $\frac{M}{3}$

(3) $\frac{M}{2}$

(4) $\frac{3M}{2}$

159. The value of physical property that is higher for H_2O than D_2O

(1) Density

(2) Temperature of maximum density

(3) Viscosity

(4) Dielectric constant

160. In ice crystals each oxygen is surrounded by ----- other oxygen atoms at a distance of 276pm

(1) 2

(2) 3

(3) 4

(4) 5

161. The reagent used in Clark's method to remove temporary hardness of water is

(1) $Mg(OH)_2$

(2) $Ca(OH)_2$

(3) NaOH

(4) KOH

162. The normality of 10 volumes of H_2O_2 is

(1) 0.89N

(2) 1.78 N

(3) 8.9 N

(4) 17.8 N

163. The correct statement(s) among the following
I. Urea acts as a stabilizer for H_2O_2.
II. H_2O_2 is used in the manufacture of high quality detergents
III. H_2O_2 is non linear and non planar molecule
IV. H_2O_2 oxidises Mn^{+2} to Mn^{+4} in basic medium

(1) I, II only

(2) I, III, IV only

(3) I, II, IV only

(4) I, II, III & IV

164. The correct order of the oxygen, oxygen bond length in O_2, H_2O_2 and O_3 is

(1) $O_3 > H_2O_2 > O_2$

(2) $H_2O_2 > O_3 > O_2$

(3) $O_2 > H_2O_2 > O_3$

(4) $O_2 > O_3 > H_2O_2$

165. In which of the following reactions, H_2O_2 acts as reducing agent?

(1) $H_2O_2 + SO_2 \rightarrow H_2SO_4$

(2) $2KI + H_2O_2 \rightarrow 2KOH + I_2$

(3) $PbS + 4H_2O_2 \rightarrow PbSO_4 + 4H_2O$

(4) $Ag_2O + H_2O_2 \rightarrow 2Ag + H_2O + O_2$

166. For the reaction involving the complete combustion of propane gas is

(1) $\Delta H = \Delta E$

(2) $\Delta H > \Delta E$

(3) $\Delta H = \Delta E = 0$

(4) $\Delta H < \Delta E$

167. A spontaneous change is one in which the system suffers

(1) Increase in internal energy

(2) Lowering of entropy

(3) Lowering of free energy

(4) No energy change

168. The standard enthalpies of formation of $HCl(g), H(g)$ **and** $Cl(g)$ **are -92.2,217.7 and 121.4** $kjmol^{-1}$ **respectively. The bond dissociation energy of *HCl* is**

(1) +431.3 Kj

(2) 236.9 kJ

(3) -431.3 kJ

(4) 339.1 kJ

169. The enthalpy of vaporization of a substance is $8400 Jmol^{-1}$ **and its boiling point is -173°C. The entropy change for vaporization is**

(1) 84 $Jmol^{-1}K^{-1}$

(2) 21 $Jmol^{-1}K^{-1}$

(3) 49 $Jmol^{-1}K^{-1}$

(4) 12 $Jmol^{-1}K^{-1}$

170. During a process work equivalent to 400 J is done on a system, which gives out of 125 J of energy. The change in internal energy is

(1) 375 J

(2) 275 J

(3) 200 J

(4) 525 J

171. For the reaction $C_{(s)} + CO_{2(g)} \Leftrightarrow 2CO_{(g)}$**, the partial pressures of** CO_2 **and** CO **are 2.0 and 4.0 atm respectively at equilibrium. What is the value of Kp for this reaction?**

(1) 0.5 atm.

(2) 4.0 atm.

(3) 8.0 atm.

(4) 32 atm.

172. For the reaction, $PCl_5(g) \rightleftharpoons PCl_3(g) + Cl_2(g)$**, the forward reaction at constant temperature is favoured by :**

I) Introducing inert gas at constant volume

II) Introducing inert gas at constant pressure

III) Decreasing pressure of the reaction mixture

IV) By adding PCl_3 **to the reaction mixture**

(1) I and II

(2) II and III

(3) I and III

(4) III and IV

173. The solubility product of different sparingly soluble salts are :

1. $XY = 4 \times 10^{-20}$ **2.** $X_2Y = 3.2 \times 10^{-11}$

3. $XY_3 = 2.7 \times 10^{-31}$

The increasing order of solubility is

(1) 1,3,2

(2) 2,1,3

(3) 1,2,3

(4) 3,1,2

174. The solubility product of AgCl is $10^{-10}M^2$. The solubility of AgCl in 0.1 M NaCl is

(1) $10^{-9}M$

(2) $10^{-5}M$

(3) $10^{-10}M$

(4) $10^{-11}M$

175. The equilibrium constant for the given reaction $N_{2(g)}+2O_{2(g)} \rightleftharpoons 2NO_{2(g)}$ is 100. What is the equilibrium constant for the reaction given

$NO_{2(g)} \rightleftharpoons \frac{1}{2}N_{2(g)}+O_{2(g)}$

(1) 10

(2) 1

(3) 0.1

(4) 0.01

176. $NH_4COONH_2(s) \rightleftharpoons 2NH_3(g)+CO_2(g)$.

If equilibrium pressure is 3 atm for the above reaction K_P will be (in atm^3)

(1) 4

(2) 27

(3) 4/27

(4) 1/27

177. Which of the following change will shift the reaction in forward direction ?

$I_2(g) \rightleftharpoons 2I(g); \Delta H^\circ = +150kJ$

(1) Increase in pressure

(2) Increase in temperature

(3) Increase in concentration of I

(4) Decrease in concentration of I_2

178. The pH of a solution is 9. Its $\left[OH^-\right]$ is decreased 1000 times. Its pH will be

(1) 8

(2) 6

(3) 7-8

(4) 12

179. Which of the following mixture is not a buffer solution

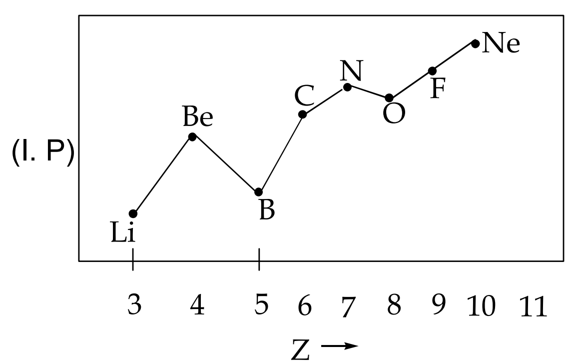
(1) 100 ml of 0.5N $CH_3COOH + 100ml$ of 0.5N CH_3COONa

(2) 100 ml of 0.5N $NH_4OH + 100ml$ of 0.5N H_2SO_4

(3) 100 ml of 0.5N NH_4OH + 10 ml of 0.5N H_2SO_4

(4) 300 ml of 0.5N NH_4OH + 200 ml of 0.5N HNO_3

180. Following graph shows variation of I.P. with atomic number in second period (Li – Ne). Value of I.P of Na (11) will be



(1) Above Ne

(2) Below Ne but above O

(3) Below Li

(4) Between N and O

SRI CHAITANYA EDUCATIONAL INSTITUTIONS, INDIA

NEET PART TEST – 1 KEY

SR.ELITE & AIIMS-60 ***Date: 05.01.2019***

BOTANY

1) 2	2) 3	3) 1	4) 4	5) 3	6) 4	7) 3	8) 2	9) 4	10) 3
11) 4	12) 1	13) 2	14) 1	15) 2	16) 2	17) 2	18) 2	19) 4	20) 1
21) 4	22) 4	23) 2	24) 3	25) 1	26) 4	27) 3	28) 4	29) 3	30) 2
31) 4	32) 3	33) 3	34) 1	35) 4	36) 1	37) 4	38) 4	39) 4	40) 4
41) 1	42) 1	43) 2	44) 1	45) 1					

ZOOLOGY

46) 2	47) 1	48) 2	49) 3	50) 2	51) 2	52) 3	53) 1	54) 2	55) 3
56) 3	57) 2	58) 4	59) 3	60) 1	61) 1	62) 2	63) 2	64) 1	65) 1
66) 1	67) 2	68) 4	69) 1	70) 4	71) 4	72) 1	73) 2	74) 4	75) 3
76) 1	77) 2	78) 2	79) 4	80) 3	81) 2	82) 4	83) 2	84) 2	85) 2
86) 2	87) 1	88) 1	89) 1	90) 2					

PHYSICS

91) 2	92) 4	93) 2	94) 4	95) 2	96) 3	97) 3	98) 1	99) 4	100) 2
101) 4	102) 4	103) 4	104) 2	105) 4	106) 3	107) 1	108) 2	109) 2	110) 2
111) 4	112) 2	113) 2	114) 3	115) 4	116) 3	117) 3	118) 2	119) 4	120) 3
121) 4	122) 4	123) 2	124) 3	125) 4	126) 4	127) 2	128) 1	129) 2	130) 3
131) 2	132) 1	133) 4	134) 4	135) 1					

CHEMISTRY

136) 2	137) 2	138) 1	139) 3	140) 1	141) 2	142) 2	143) 2	144) 2	145) 1
146) 3	147) 4	148) 2	149) 4	150) 2	151) 4	152) 3	153) 4	154) 3	155) 3
156) 4	157) 4	158) 2	159) 4	160) 3	161) 2	162) 2	163) 4	164) 2	165) 4
166) 4	167) 3	168) 1	169) 1	170) 2	171) 3	172) 2	173) 1	174) 1	175) 3
176) 1	177) 2	178) 2	179) 2	180) 3					

Physics Solutions :

91. P = F . V

$$V=\frac{P}{F}=\frac{10^6}{10}=10^5 ms^{-1}.$$

$$V=LT^{-1}$$

$$L=VT=10^5\times10^{-3}$$ = 100 m

92. $A=\frac{1}{t}=T^{-1}$

$$V_0=xA=LT^{-1}$$

93. $\Delta R=\Delta R_1+\Delta R_2$

Tolence $=\frac{\Delta R}{R}\times100$

94. $T=\frac{t}{n}\Rightarrow\frac{\Delta T}{T}=\frac{\Delta t}{t}$

$$\frac{\Delta g}{g}=\frac{\Delta l}{l}+2\left(\frac{\Delta T}{T}\right)$$

$$\Rightarrow\frac{\Delta g}{g}=\frac{\Delta l}{l}+2\left(\frac{\Delta t}{t}\right)$$

95. n_1 old units = n_2 new units.

96. $M=p^x c^y g^z$

97. $V=\frac{ds}{dt}$

$$a=\frac{dv}{dt}$$

98. $s=\frac{1}{2}gt^2$

Where t = 1s

99. $H=-ut+\frac{1}{2}gt^2$

100. $V_W=5J$

$$V_{WC}=-5J$$

$$V_{WC}=V_W-V_C$$

101. $\sin\theta=\frac{V_r}{V_{mr}}=\frac{1}{2}$

$$\theta=30^\circ$$

Hence 120º with river flow

102. $H=\frac{R}{4}Tan\theta$

103. $Tan45=\frac{V_y}{V_x}$

$$\Rightarrow V_y=V_x$$

$$\therefore V_x=gt$$

104. $a=\sqrt{a_c^2+a_t^2}$

105. If θ is the deflection then $g\sin\theta=\frac{v^2}{l}$

Where $v^2=2gl(1-\cos\theta)$

106. $\Delta P=F\times t$

= mg × t

107. $O=P_b+P_g$

Let $V_g=x$

$$V_{bg}=V$$

$$V_b-V_g=V$$

$$V_b=x+v$$

$$\therefore V_g=\frac{-mu}{M+m}$$

$$F=\frac{\Delta P}{\Delta t}$$

108. Acceleration a = 0

$$\therefore T=mg$$

109. 900 = m(g + a)

300 = m(g – a)

110. $a_s=\frac{14}{4+2+1}=2ms^{-2}$

$$F_{AB}=(2+1)a_s=6N$$

111. $F_{\min}=mg\sin\theta$

Where $Tan\theta=\mu_s=\frac{1}{\sqrt{3}}$

112. $ma<f_{ms}$

$$\Rightarrow f_s=ma$$

113. $\mu_k = Tan\theta = \frac{1}{\sqrt{3}}$

$$-mg\left(\sin\theta + \mu_k \cos\theta\right)s = \theta - \frac{1}{2}mV^2$$

114. $T_1 - T_2 = mlW^2$

$$T_2 = m.2l.W^2$$

115. Area $= \frac{1}{2}m\left(v^2 - u^2\right)$

116. $F.t = m\left(v - u\right)$

$$F.s = \frac{1}{2}m\left(v^2 - u^2\right)$$

117. $P = Adv^3$

118. $T_{\max} = 8mg$

$$T_{\max} - T_{\min} = 6mg$$

119. $v_2 - u_1\left(\frac{2m_1}{m_1 + m_2}\right) + u_2\left(\frac{m_2 - m_1}{m_1 + m_2}\right)$

120. $m_1 = em_2$

$$\Delta U = \frac{1}{2}\frac{m_1 m_2}{m_1 + m_2}\left(1 - e^2\right)u^2$$

121. $v_1 = u_1\left(\frac{m_1 - em_2}{m_1 + m_2}\right)$

$$v_2 = u_1\left(\frac{\left(1 + e\right)m_1}{m_1 + m_2}\right)$$

122. $\overline{a_c} = \frac{\sum m\overline{a}}{\sum m}$

123. The only force acting is gravity. Hence centre of mass moves vertically down.

124. $6m.x = m\left(a - x\right)$

125. $K^2 = K_c^2 + r^2$

126. $I = mr^2 + \left[mr^2 + m.\left(2r\right)^2\right]2$

127. $I \times 60 = \left(I + \frac{I}{2}\right) \times \omega$

128 $\tau = I \propto$

$$\omega = \omega_0 + \propto t$$

129. $mgl = \frac{1}{2}mv^2$

$$L = mvl$$

130. $\sum E = \frac{1}{2}mv^2\left[1 + \frac{K^2}{r^2}\right]$

131. $\forall r \le a$, the potential is equal to that on surface

132. $V_0 = \sqrt{\frac{GM}{r}}$

133. Inertia of motion and direction.

134. $g^1 = \frac{GM}{\left(R + h\right)^2}$

135. $T = 2\pi\sqrt{\frac{R}{g}}$

Where $g = \frac{4}{3}\pi GDR$.