

20th Jan, 2019



COACHING

NEET | IIT - JEE

BEAT THE NEET

TEST No: 21

SYLLABUS

BOTANY	ZOOLOGY	PHYSICS	CHEMISTRY
Biological Classification	Neural Control and Co-ordination	Thermodynamics, Kinetic Theory	Organic Chemistry – Some Basic Principles and Techniques



XI STD
syllabus

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IMPORTANT INSTRUCTIONS:

1. There are four parts in the question paper A, B, C and D consisting of **Botany, Zoology, Physics and Chemistry** having **45 questions in each part** of equal weightage. Each question is allotted **4 (four) marks for each correct response**.
2. Candidates will be awarded marks as stated above in instruction for correct response of each question. **1/4 (one fourth) marks will be deducted for indicating incorrect response of each question**. No deduction from the total score will be made if no response is indicated for an item in the answer sheet.
3. There is only one correct response for each question. **Filling up more than one response in each question will be treated as wrong response** and marks for wrong response will be deducted accordingly as per instruction.

BOTANY

1. **During Gram's stain**
 - a) All bacteria whether Gram (+) ve or (-ve), take crystal violet stain
 - b) Only gram +ve bacteria take crystal violet stain
 - c) Only Gram – ve bacteria take crystal violet stain
 - d) Gram (+) ve bacteria lose this stain after alcohol treatment and take red stain of safranin
2. **Under optimum condition Bacterial cells divide once in 20 minutes by binary fission. How many bacteria will be produced in 2 hours with same rate of division ?**
 - a) 8
 - b) 32
 - c) 128
 - d) 64
3. **The archaeobacteria occurring in marshes, swamps, rumens of cattles, gohar gas plants are**
 - a) methanogens
 - b) ammonifying bacteria
 - c) thermoacidophiles
 - d) denitrifying bacteria
4. **A symbiotic nitrogen fixing moneran among the following is**
 - a) Nitrocystis
 - b) Anabaena
 - c) Nitrobacter
 - d) Escherichia
5. **From where you will collect E. coli ?**
 - a) Human excreta
 - b) On leaves
 - c) Water
 - d) Human stomach
6. **A bacterial cell divides every minute. It takes one hour to fill a cup. Time required to fill half cup is**
 - a) 60 minutes
 - b) 59 minutes
 - c) 30 minutes
 - d) 29 minutes
7. **The joker of plant kingdom area**
 - a) Bacteria
 - b) Archaeobacteria
 - c) PPLO
 - d) Virioids
8. **Which one of the following statements is wrong**
 - a) Golden algae are also called desmids
 - b) Eubacteria are also called false bacteria
 - c) Phycomycetes are fungi
 - d) Cyanobacteria are also called blue – green alage
9. **Select the wrong statement**
 - a) Bacterial cell wall is made up of peptidoglycan
 - b) Pili and fimbriae are mainly involved in motility of bacterial cells
 - c) Cyanobacteria lack flagellated cells
 - d) Mycoplasma is a wall – less microorganism
10. **Which one of the following is a slime mould**
 - a) Thiobacillus
 - b) Anabaena
 - c) Rhizopus
 - d) Physarum
11. **The 'fire' algae responsible for red tides are the red dinoflagellates, which are**
 - a) Ceratium
 - b) Gonyaulax
 - c) Gymnodinium
 - d) (2) and (3)

12. **Auxospores or rejuvenescent cells are characteristic of which of the followings**
 a) Dinoflagellates b) Diatoms c) Zooflagellates d) Sporozoans
13. **Paralytic shellfish poisoning (PSP) is caused by toxin saxitoxin by**
 a) Vorticella b) Ephidicum c) Gonyaulax d) Ceratium
14. **Which animalcule is immortal ?**
 a) Paramecium b) Plasmodium c) Amoeba d) Euglena

15. **Match the following and select the correct combination from the options given below**

Column I (kingdom)	Column II (Class)
A. Plantae	1. Archaeobacteria
B. Fungi	2. Euglenoids
C. Protista	3. Phycomycetes
D. Monera	4. Algae

- a) A-4, B - 3, C- 2, D- 1 b) A- 1, B- 2, C-3, D-4 c) A-3, B-4, C-2, D-1 d) A-2, B- 3, C- 4, D-1
16. **Which of the following does not belong to the kingdom Prostia**
 a) Chrysophytes b) Euglenoids c) Ascomycetes d) Dinoflagellates
17. **In the five kingdom classification, chlamydomonas and chlorella have been included in**
 a) Protista b) algae c) Plantae d) monera
18. **The beautiful diatoms and desmids are placed under**
 a) chrysophytes b) dinoflagellates c) euglenoids d) slime moulds
19. **In which group of organisms the cell walls form two thin overlapping shells which fit together**
 a) Chrysophytes b) Euglenoids c) Dinoflagellates d) Slime moulds
20. **Chrysophytes, Euglenoids, Dinoflagellates and Slime moulds are included in the kingdom**
 a) Protista b) Fungi c) Animalia d) Monera
21. **Select the wrong statement**
 a) The walls of diatoms are easily destructible
 b) 'Diatomaceous earth' is formed by the cell walls of diatoms
 c) Diatoms are chief producers in the oceans
 d) Diatoms are microscopic and float passively in water
22. **Mycorrhiza is**
 a) symbiotic association of a soil fungus and roots of higher plants
 b) Parasite association between a fungus and roots of seeded plants
 c) saprophytic association between a fungus and roots of seeded plants
 d) symbiotic association between an algae and fungi
23. **In sac fungi (ascomycetes) the ascospores occur in sac like body known as**
 a) ascus b) basidium c) ascocarp d) basidiocarp
24. **The name Club fungi is given to basidiomycetes due to the presence of**
 a) Club shaped basidia b) club shaped basidiospores
 c) hymenium of basidia d) water droplet mechanism for dehiscence of basidiospores

25. **All members of fungi imperfecti (Deutero-mycetes) group lack**
 a) sexual reproduction b) spores c) asexual reproduction d) hyphae
26. **Rice crop was destroyed by a fungus which resulted in Bengal famine (1942-43). It was due to**
 a) Xanthomonas malvacearum b) Pyricularia oryzae c) Helminthosporium oryzae d) Puccinia graminis
27. **A fungus whose extract of sclerotia can be chemically altered to produce powerful hallucinogenic drug (LSD) is**
 a) Claviceps purpurea b) Aspergillus flavus c) Amanita caesarea d) Psilocybe mexicana
28. **Meiosis occurs in the life cycle of Rhizopus during**
 a) formation of gemetangium b) germination of zygosporangium
 c) formation of germ sporangium d) formation of aplanospores
29. **Ascus in ascomycetes contains 8 ascospores. These are formed as a result of**
 a) two meiosis b) one meiosis and one mitosis c) four mitosis d) one meiosis and two mitosis
30. **Champ connections occur in**
 a) Haplomycetes b) Saccharomycetes c) Basidiomycetes d) Ascomycetes
31. **The fruiting body formed from a filamentous heterotrophic organism which is known for its nutritive value for the humanity is**
 a) Cremocarp b) Acervulus c) Basidiocarp d) Akinete
32. **Find the correct match**
- | Name | Feature | Class |
|-----------------|-------------------------------|----------------|
| (a) Aspergillus | Aseptate mycelium | Ascomycetes |
| (b) Trichoderma | Imperfect fungi | Phycomycetes |
| (c) Rhizopus | Coenocytic mycelium | Deuteromycetes |
| (d) Puccinia | Branched and septate mycelium | Basidiomycetes |
33. **Match the columns**
- | | |
|----------------------------|------------------------------|
| (A) Early Blight of potato | (i) Puccinia graminis |
| (B) Late Blight to potato | (ii) Ustilago tritici |
| (C) Smut of Wheat | (iii) Phytophthora infestans |
| (D) Rust of Wheat | (iv) Alternaria solani |
- a) (A)-(i), (B) – (ii), (C) – (iii), (D) – (iv) b) (A) – (iv), (B) – (iii), (C) – (ii), (D) – (i)
 c) (A) – (ii), (B) – (iii), (C) – (iv), (D) – (i) d) (A) – (iv), (B) – (ii), (C) – (iii), (D) – (i)
34. **Find the correct match**
 a) Phytophthora infestans – Early blight of potato b) Albugo candida – white rust of crucifers
 c) Puccinia graminis – Loose smut of wheat d) All of the above
35. **Which one of the following is endogenously produced**
 a) Ascospores b) Basidiospores c) Conidiospores d) All of the above
36. **The staple crop in Ireland was completely destroyed in 1844 – 1846 , by a fungal disease resulting in a great famine. The causal organism in this case was**
 a) Puccinia graminis b) Ustilago tritici c) Phytophthora infestans d) Claviceps purpurea

37. Match column I with column II and select the correct option

Column I (kingdom) Column II (Class)

- | | |
|--------------------|-------------------|
| A. Morels | 1. Deuteromycetes |
| B. Smut | 2. Ascomycetes |
| C. Bread mould | 3. Basidiomycetes |
| D. Imperfect fungi | 4. Pycomycetes |

- a) A-3, B - 4, C- 1, D- 2 b) A- 2, B- 3, C-4, D-1 c) A-3, B-4, C-2, D-1 d) A-2, B- 1, C- 4, D-3

38. Which one single organism or the pair of organisms is correctly assigned to its or their named taxonomic group

- a) Lichen is a composite organism formed from the symbiotic association of an algae and a protozoan
 b) Yeast used in making bread and beer is a fungus
 c) Nostoc and Anabaena are examples of Protista
 d) Paramecium and Plasmodium belong to the same kingdom as that of penicillium

39. The imperfect fungi which are decomposers of litter and help in mineral cycling belong to

- a) Deuteromycetes b) Basidiomycetes c) Phycomycetes d) Ascomycetes

40. Choose the wrong statement

- a) Penicillium is multicellular and Produces antibiotics
 b) Neurospora is used in the study of biochemical genetics
 c) Morels and truffles are poisonous mushrooms
 d) Yeast is unicellular and useful in fermentation

41. Which one of the following is wrong for fungi

- a) They are eukaryotic b) All fungi possess a purely cellulosic cell wall
 c) They are heterotrophic d) They are both unicellular and multicellular

42. Which of the following organisms completely lack cellwall, they are the smallest living cells known and can survive without oxygen

- a) Mycoplasma b) Euglenoids c) Slime moulds d) All of these

43. The type of diploid sexual resting spores formed during unfavorable conditions in Spirogyra is

- a) Germ spores b) Zygosporangia c) Zoospores d) Aplanospores

44. The living characteristic of virus is

- a) Presence of nucleic acid as their genetic material b) Ability to produce their own copies
 c) Cellular organization d) Autotrophic nutrition

45. Heterocyst present in Nostoc is specialized for

- a) Fragmentation b) Nitrogen fixation c) Storage d) Photosynthesis

ZOOLOGY

46. Coordination between left and right cerebral hemispheres is brought out by

- a) Corpus luteum b) Corpus spongiosum c) Pons varolii d) Corpus callosum

47. Human brain is considered evolutionarily advanced due to the development of

- a) Diencephalon b) Gyri and sulci c) optic lobes d) Medulla oblongata

48. Association areas of cerebral cortex are concerned with

- a) Purely sensory functions b) purely motor functions
 c) Functions neither clearly sensory nor motor d) Vision and equilibrium

49. **Frontal, parietal, temporal and occipital lobes are the parts of**
 a)optic lobes b)Cerebellum c)thalamencephalon d)Cerebrum
50. **Anterior choroid plexus is present in**
 a)Roof of diencephalon b)Roof of medulla c)Floor of epithalamus d)Floor of medulla
51. **Centers for satiety, feeding and thirst are present in**
 a)medulla oblongata b)hypothalamus c)pons varolii d)Cerebellum
52. **Limbic system of brain does not include**
 a)Cerebral hemispheres b)Amygdala c)Arborvitae d)Hippocampus
53. **Dorsal portion of mesencephalon consists of**
 a)Posterior choroid plexus b)Corpora quadrigemina c)Arborvitae d)Corpus callosum
54. **Crus cerebrum connects**
 a)Paracoels with diocoel b)Cerebellum with spinal cord
 c)Cerebral hemispheres with pons d)Cerebellar halves
55. **'The tree of life' is**
 a)Medulla oblongata b)Arbor vitae c)Pons varolii d)Organ of corti
56. **Pineal stalk arises from**
 a)Dorsal surface of epithalamus b)Ventral surface of epithalamus
 c)Ventral surface of hypothalamus d)Dorsal surface f hypothalamus
57. **Control and coordination of muscular movements is the function of**
 a)Mesencephalon b)Hypothalamus c)Cerebellum d)Medulla
58. **This one forms a bridge between two cerebellar hemispheres**
 a)Corpus callosum b)Pons varolii c)Cerebral peduncles d)Infundibulum
59. **Relay station between the cerebellum, spinal cord and rest of the brain is**
 a)Medulla oblongata b)Mesencephalon c)Cerebellum d)Pons varolii
60. **Brain stem does not include**
 a)Medulla oblongata b)Mesencephalon c)Hippocampus d)Pons varolii
61. **The vascular folded structure seen in the medulla oblongata is**
 a)Arbor vitae b)Anterior choroid plexus c)Posterior choroid plexus d) Infundibulum
62. **Iter lies in between**
 a)paracoel and diocoel b)metacoel and paracoel c)Paracoel and paracoel d)metacoel and diocoel
63. **Neuronal processing related to language learning in right handed people is performed in this part of brain**
 a)left cerebral hemisphere b)Right cerebral hemisphere
 c)left cerebellar half d)Right cerebellar half
64. **Removal of which part of brain causes immediate death?**
 a)Cerebrum b)Optic lobes c)Medulla oblongata d)Olfactory lobes

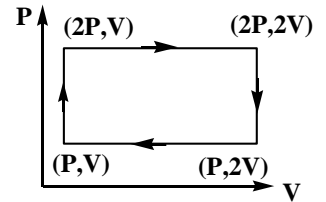
65. Study the following about the brain.
 I. The midbrain, pons, cerebellum and medulla oblongata together form brain stem.
 II. The inner parts of cerebral hemispheres, amygdala and hippocampus form the limbic system.
 III. Each cerebral hemisphere is divided into frontal, parietal, temporal and occipital lobes.
 Correct ones of the above are
 a) Only I and III b) Only I and II c) Only II and III d) I, II, III
66. Osmoregulatory and thermoregulatory centers are located in
 a) Pons varolii b) Hypothalamus c) Medulla oblongata d) Diencephalon
67. Match the following and choose the correct combination
- | <u>BRAIN STRUCTURE</u> | <u>RELATED FUNCTION</u> |
|--------------------------------|------------------------------------------------|
| A) Superior colliculi-hearing | 1. Auditory |
| B) Association areas | 2. Memory, communication |
| C) Inferior colliculi-auditing | 3. Vision |
| D) Cerebellum | 4. relay station between spinal Cord and brain |
| | 5. maintains equilibrium |
- The correct answer is
 a) A-3, B-2, C-4, D-5 b) A-3, B-2, C-4, D-1 c) A-2, B-4, C-1, D-5 d) A-3, B-2, C-1, D-5
68. Match the following and choose the correct combination.
- | <u>CENTRE</u> | <u>LOCATED IN</u> |
|-----------------------|----------------------|
| A) Pneumotaxic centre | 1. Medulla oblongata |
| B) satiety centre | 2. Cerebellum |
| C) Vomiting centre | 3. Hypothalamus |
| D) Arborvitae | 4. Epithalamus |
| | 5. Pons varolii |
- The correct answer is
 a) A-3, B-1, C-4, D-2 b) A-4, B-2, C-5, D-1 c) A-5, B-3, C-1, D-2 d) A-2, B-3, C-1, D-5
69. Photosensitive substance concerned with vision is
 a) melanin b) retinol c) rhodopsin d) collagen
70. In humans color vision is controlled by
 a) rods b) rhabdome c) crystalline d) cones
71. This part of eyes is useful much while walking, reading and driving
 a) Optic disc b) fovea c) blind spot d) sclera
72. Main function of vestibular apparatus is
 a) Processing information of vision b) perceive and transmits sound vibrations
 c) Perceive the motion of head d) maintaining the shape of internal ear
73. Lens and cornea are nourished by
 a) vitreous humor b) Aqueous humor c) sclera d) canal of schlemm
74. Principle function of iris is
 a) Filtering dust particles b) Preventing entry of UV rays into eyes
 c) Formation of tears d) To regulate the amount of light that enter the eyes
75. Stapes is attached to
 a) Fenestra ovalis b) Eustachian tube c) Fenestra rotunda d) Tympanic membrane

76. **Otolith organ comprises**
 a) Ampulla and crista
 b) Cochlea and semicircular canals
 c) saccule and utricle
 d) Ampulla and macula
77. **Set of non-vascular parts of eyes is**
 a) Lens, cornea
 b) Ciliary body, iris
 c) Choroid, cornea
 d) Retina, lens
78. **The correct pair with regard to human sense organs is**
 a) Optic disc - No rods but only cones
 b) Macula - vestibule
 c) Scotopic vision - Iodopsin
 d) Tympanic cavity - Fluid filled cavity
79. **Near or far vision in a normal person is attained by changing the**
 a) Position of retina
 b) Area of pupil
 c) Shape of lens
 d) Position of cornea
80. **Aqueous humor is secreted by**
 a) Lacrimal glands
 b) Ciliary processes
 c) Iris
 d) Scleral venous sinus
81. **Receptors for gravity are present on**
 a) Cochlea
 b) Macula
 c) Semicircular canals
 d) Middle ear
82. **Organ of Corti is located in**
 a) Sacculus
 b) Scala tympani
 c) Scala media
 d) Scala vestibule
83. **Eustachian tube connects**
 a) External ear and middle ear
 b) Pharynx and middle ear
 c) Middle ear and internal ear
 d) Oral cavity and external ear
84. **The correct order of arrangement of ear ossicles from outer to inner is**
 a) Malleus, stapes, incus
 b) Incus, stapes, malleus
 c) Stapes, malleus, incus
 d) Malleus, incus, stapes
85. **Aqueous and vitreous humors are separated by**
 a) Conjunctiva
 b) Cornea
 c) Iris
 d) Lens
86. **Eustachian tube helps in**
 a) Carry impulses to internal ear
 b) Carry vibrations from external ear
 c) Maintains body posture
 d) Maintain equilibrium on either side of ear drum
87. **Canal of Schlemm is present at the junction of**
 a) Middle ear and pharynx
 b) Sclera and cornea of eye
 c) Lens and retina of eye
 d) Fovea and optic disc
88. **The layer closest to the choroid coat of eyes is**
 a) Photoreceptor layer
 b) Bipolar cell layer
 c) Ganglion cell layer
 d) Multipolar cell layer
89. **Visual purple is important in**
 a) Colour vision
 b) Scotopic vision
 c) Photopic vision
 d) Binocular vision
90. **The up-ward and down-ward movement in a lift are perceived by**
 a) Sacculus
 b) Utricle
 c) Cochlea
 d) Organ of Corti

PHYSICS

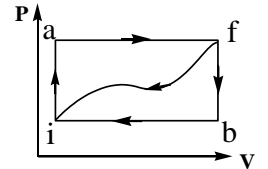
91. Work done in the given P-V diagram in the cyclic process is;

- a) PV b) 2PV
 c) PV/2 d) 3PV



92. When a system is taken from state i to a state f along path iaf, $Q = 50$ J and $W = 20$ J. Along path ibf, $Q = 35$ J. If $W = -13$ J for the curved return path fi, Q for this path is

- a) 33 J b) 23 J
 c) -7 J d) -43 J

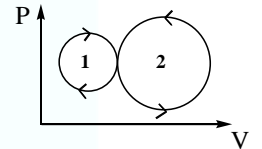


93. When a monoatomic gas expands at constant pressure, the percentage of heat supplied that increases the internal energy of the gas and that which is involved in expansion is

- a) 75%, 25% b) 25%, 75% c) 60%, 40% d) 40%, 60%

94. In the following indicator diagram, the net amount of work done will be

- a) Positive b) Negative
 c) Zero d) Infinity



95. Efficiency of a Carnot engine is 50% when temperature of outlet is 500 K. In order to increase efficiency up to 60% keeping temperature of intake the same what is temperature of outlet

- a) 200 K b) 400 K c) 600 K d) 800 K

96. If the door of refrigerator is kept open, then which of the following is true

- a) Room is cooled b) Room is heated
 c) Room is either cooled or heated d) Room is neither cooled nor heated

97. During an adiabatic compression, 830 J of work is done on 2 moles of a diatomic ideal gas to reduce its volume by 50%. The change in its temperature is nearly ($R = 8.3 \text{ JK}^{-1} \text{ mol}^{-1}$)

- a) 40 K b) 33 K c) 20 K d) 14 K

98. The r.m.s. velocity of oxygen molecular at 16°C is 474 m/sec. The r.m.s velocity in m/s of hydrogen molecule at 127°C is

- a) 1603 b) 1896 c) 2230.59 d) 2730

99. At 0°K which of the following properties of a gas will be zero?

- a) Kinetic energy b) Potential energy c) Vibrational energy d) Density

100. The perfect gas equation for 4 gram of hydrogen gas is

- a) $PV = RT$ b) $PV = 2RT$ c) $PV = \frac{1}{2} RT$ d) $PV = 4RT$

101. The number of degrees of freedom for each atom of a monoatomic gas is

- a) 3 b) 5 c) 6 d) 1

102. In an adiabatic expansion of a gas initial and final temperatures are T_1 and T_2 respectively, then the change in internal energy of the gas is

- a) $\frac{R}{\gamma - 1} (T_2 - T_1)$ b) $\frac{R}{\gamma - 1} (T_1 - T_2)$ c) $R(T_1 - T_2)$ d) Zero

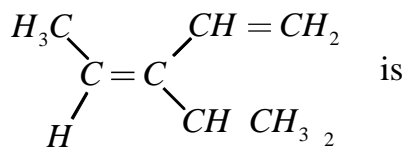
114. A Steel ball of mass 0.1kg falls freely from a height of 10m and bounce to a height of 5.4m from the ground. If the dissipated energy in this process is absorbed by the ball, the rise in its temperature is (*specific heat of steel* $460\text{ jkg}^{-1}\text{K}^{-1}$, $g = 19\text{ms}^{-2}$)
- a) 0.01°C b) 0.1°C c) 1°C d) 1.1°C
115. Cooking is difficult on mountains because
- a) water boils at low temperature b) water boils at high temperature
c) water does not boil d) it is cool there
116. A large block of ice is placed on a table when the surroundings are at 0°C
- a) ice melts at the sides b) ice melts at the top c) ice melts at the bottom d) ice does not melt at all
117. The ratio of densities of two substances is $2 : 3$ and that of specific heats $1 : 2$. The ratio of thermal capacities per unit volume is
- a) $1 : 2$ b) $2 : 1$ c) $1 : 3$ d) $3 : 1$
118. Two liquids A and B of equal volumes have their specific heats in the ratio $2 : 3$. If they have same thermal capacity, then the ratio of their densities is
- a) $1 : 1$ b) $2 : 3$ c) $3 : 2$ d) $5 : 6$
119. Specific heat of aluminium is $0.25\text{ cal} / \text{g} - ^{\circ}\text{C}$. The water equivalent of an aluminium is vessel of mass one kilogram is
- a) $40\text{ cal} / ^{\circ}\text{C}$ b) 250 g c) $250\text{ cal} / ^{\circ}\text{C}$ d) 40 g
120. Two liquids A and B are at 30°C and 20°C respectively. When they are mixed in equal masses the temperature of the mixture is found to be 26°C . The ratio of specific heats is
- a) $4 : 3$ b) $3 : 4$ c) $2 : 3$ d) $3 : 2$
121. If 10g of the ice at 0°C is mixed with 10g of water at 100°C , then the final temperature of the mixture will be
- a) 5°C b) 10°C c) 100 K d) 0°C
122. The heat energy required to vapourise 5 kg of water at 373 K is
- a) $2700\text{ K} \cdot \text{cal}$ b) $1000\text{ K} \cdot \text{cal}$ c) $27\text{ K} \cdot \text{cal}$ d) $270\text{ K} \cdot \text{cal}$
123. A metal block absorbs 4500 cal of heat when heated from 30°C to 80°C . Its thermal capacity is
- a) 90 gm b) $90\text{ cal} / ^{\circ}\text{C}$ c) 9 gm d) $9\text{ cal} / ^{\circ}\text{C}$
124. Three liquids A, B and C of masses 400gm , 600gm and 800gm are at 30°C , 40°C and 50°C respectively. When A and B are mixed resultant temperature is 36°C are mixed resultant temperature is 44°C Then ratio of their specific heats are
- a) $2 : 1 : 1$ b) $3 : 2 : 1$ c) $2 : 2 : 1$ d) $1 : 4 : 9$
125. 50g of copper is heated to increase its temperature by 10°C . If the same quantity of heat is given to 10 g of water, the rise in its temperature is ($S_{cu} = 420\text{ J} / \text{kg} / ^{\circ}\text{C}$ and $S_w = 4200\text{ J} / \text{kg} / ^{\circ}\text{C}$)
- a) 5°C b) 6°C c) 7°C d) 8°C

126. Power of man who can chew 0.3 kg ice in one minute is (in cal/s)
 a) 400 b) 4 c) 24 d) 240
127. One mole of oxygen is heated at constant pressure starting at 0°C . The heat energy that must be supplied to the gas to double its volume (R is the molar gas constant)
 a) $2.5 \times 273 \times R$ b) $3.5 \times 273 \times R$ c) $2.5 \times 546 \times R$ d) $3.5 \times 546 \times R$
128. A Carnot's engine whose sink is at a temperature of 300K has an efficiency of 40%. By how much should the temperature of the source be increased so as to increase the efficiency to 60%
 a) 250K b) 275 K c) 300 K d) 325 K
129. An ideal Carnot's engine whose efficiency is 40% receives heat at 500K. If the efficiency is to be 50% then the temperature of sink will be
 a) 600 K b) 800 K c) 1000K d) 250 K
130. The average kinetic energy of a molecule of a gas at absolute temperature T is proportional to
 a) $1/T$ b) \sqrt{T} c) T d) T^2
131. At a given temperature if v_{rms} is the root mean square velocity of the molecules of a gas and v_s be the velocity of sound in it, then these are related as $\left(\gamma = \frac{C_p}{C_v} \right)$
 a) $v_{rms} = v_s$ b) $v_{rms} = \sqrt{\frac{3}{\gamma}} \times v_s$ c) $v_{rms} = \sqrt{\frac{\gamma}{3}} \times v_s$ d) $v_{rms} = \sqrt{\frac{3}{\gamma}} \times v_s$
132. The average degrees of freedom per molecule for a gas is 6. The gas performs 25J of work when it expands at constant pressure. The heat absorbed by gas is
 a) 75J b) 100 J c) 150 J d) 125 J
133. The root mean square velocity, v_{rms} the average velocity v_{av} and the most probable velocity, v_{mp} of the molecules of the gas are in the order :
 a) $v_{mp} > v_{avg} > v_{rms}$ b) $v_{rms} > v_{avg} > v_{mp}$ c) $v_{avg} > v_{mp} > v_{rms}$ d) $v_{mp} > v_{rms} > v_{avg}$
134. If number of molecules of H_2 are double than that of O_2 , then ratio of kinetic energy of hydrogen and that of oxygen at 300 K is
 a) 1: 1 b) 1 : 2 c) 2 : 1 d) 1 : 16
135. Air expands from 5 litres to 10 litres at 2 atm pressure. External work done is
 a) 10J b) 1000J c) 3000 J d) 300 J

CHEMISTRY

136. 0.45 gm of an organic compound containing only carbon, hydrogen and nitrogen on combustion gave 1.1 g of CO_2 and 0.3 g of water, the empirical formula of the compound?
 a) $\text{C}_4\text{H}_3\text{N}_2$ b) $\text{C}_3\text{H}_4\text{N}_2$ c) $\text{C}_4\text{H}_3\text{N}$ d) $\text{C}_3\text{H}_4\text{N}$

137.



- a) E-isomer b) Z-isomer c) Cis-isomer d) Trans-isomer

138. The number of σ and π bonds in a molecule of acetonitrile are respectively

- a) 2,5 b) 3,4 c) 4,3 d) 5,2

139. The optical inactivity due to internal compensation can be exhibited by:

- a) dextro-tartaric acid b) laevo-tartaric acid c) racemic-tartaric acid d) meso-tartaric acid

140. The structure of allylchloride is

- a) $\text{CH}_2 = \text{CH} - \text{CH}_2\text{Cl}$ b) $\text{CH}_2 = \text{C}(\text{Cl}) - \text{CH}_3$
 c) $\text{CH}(\text{Cl}) = \text{CH} - \text{CH}_3$ d) $\text{CH}(\text{Cl}) = \text{C}(\text{Cl}) - \text{CH}_3$

141. Which of the following is hetero cyclic compound?

- a) Anthracene b) Pyrrole c) Phenol d) Isobutylene

142. Distillation is used to separate liquids which differ in the b.p by

- a) 5°C b) 10°C c) $30 - 80^\circ\text{C}$ d) 100°C

143. Example of chain isomerism are

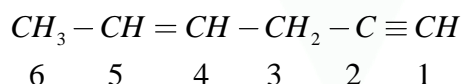
- a) Ortho and meta toluic acids b) Methyl acetate and ethyl formate
 c) Pentanoic acid and 2-methyl butanoic acid d) 2-pentanone and 3-pentanone

144. How many stereoisomers does this molecule have



- a) 4 b) 6 c) 8 d) 2

145. In the hydrocarbon



The state of hybridization of carbons 1,3 and 5 are in the following sequence:

- a) sp^2, sp, sp^3 b) sp, sp^3, sp^2 c) sp, sp^2, sp^3 d) sp^3, sp^2, sp

146. Which of the following compounds will exhibit cis-trans (geometrical) isomerism?

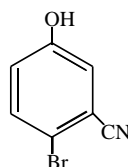
- a) Butanol b) 2-Butyne c) 2-Butenol d) 2-Butene

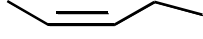
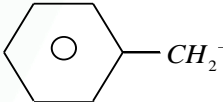
147. The correct decreasing order of priority for the functional groups of organic compounds in the IUPAC system of nomenclature is

- a) $-\text{COOH}, -\text{SO}_3\text{H}, -\text{CONH}_2, -\text{CHO}$ b) $-\text{SO}_3\text{H}, -\text{COOH}, -\text{CONH}_2, -\text{CHO}$
 c) $-\text{CHO}, -\text{COOH}, -\text{SO}_3\text{H}, -\text{CONH}_2$ d) $-\text{CONH}_2, -\text{CHO}, -\text{SO}_3\text{H}, -\text{COOH}$

148. The IUPAC name of the following compound is

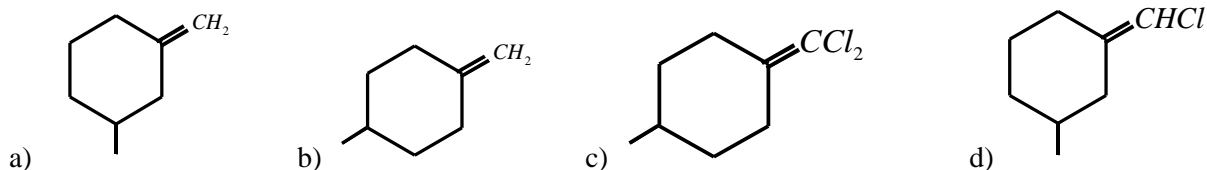
- a) 4-Bromo-3-cyanophenol
 b) 2-Bromo-5-hydroxybenzonitrile
 c) 2-Cyano-4-hydroxybromobenzene
 d) 6-Bromo-3-hydroxybenzonitrile



149. In Duma's method for estimation of nitrogen, 0.25 g of an organic compound gave 40 mL of nitrogen collected at 300 K temperature and 725 mm pressure. If the aqueous tension at 300 K is 25 mm, the percentage of nitrogen in the compound is:
 a) 18.20 b) 16.76 c) 15.76 d) 17.36
150. The number of isomers of the compound C_2BrFCl is
 a) 3 b) 4 c) 5 d) 6
151. Correct order of stability is:
 a) cis-2-butene.1-butene>trans-2-butene b) trans-2-butene>cis-2-butene>1-butene
 c) 1-butene>cis-2-butene>trans-2-butene d) cis-2-butene>trans-2-butene>1-butene
152. Which of the following does not exhibit cis-trans isomerism
 a) $C_6H_5CH = NOH$ b) $C_6H_5N = NC_6H_5$ c)  d) None of these
153. 0.37 g of a given compound gave 0.631 g of the silver bromide, the percentage of bromine in it
 a) 52.3% b) 72.6% c) 80.2% d) 28.4%
154. During hearing of a court case, the judge suspected that some changes in the documents had been carried out. He asked the forensic department to check the ink used at two different places. According to you which technique can give the best results?
 a) Column chromatography b) Solvent extraction
 c) Distillation d) Thin layer chromatography
155. The principle involved in paper chromatography is
 a) adsorption b) partition c) solubility d) volatility
156. What is the hybridisation state of benzyl carbonium ion 
 a) sp^3 b) sp^2 c) spd^2 d) sp^2d
157. Nitrogen detection in an organic compound is carried out by Lassaigne's test. The blue colour formed corresponds to which of the following formulae
 a) $Fe_3[Fe CN_6]_3$ b) $Fe_3[Fe CN_6]_2$ c) $Fe_4[Fe CN_6]_3$ d) $Fe_4[Fe CN_6]_2$
158. In the Kjeldahl's method for estimation of nitrogen present in a soil sample, ammonia evolved from 0.75 g of sample neutralized 10 mL of 1M H_2SO_4 . The percentage of nitrogen in the soil is
 a) 37.33 b) 45.33 c) 35.33 d) 43.33
159. $CH_3CH_2CH_2OH$ is a functional isomers of
 a) $C_2H_5OCH_3$ b) $CH_3OC_3H_7$ c) $CH_3CH_2CH_2OCH_2CH_3$ d) $CH_3CHOHCH_3$
160. The IUPAC name of $CH_3 - C \equiv C - CH - CH_3$ is
 a) 4-methyl-2-pentyne b) 4,4-dimethyl-2-butyne
 c) methyl isopropyl acetylene d) 2-methyl-4-pentyne

161. **Assertion (A): Lactic acid is optically active compound**
Reason (R): It contains a chiral centre with plane of symmetry
 a) Both A and R are true and R is correct explanation of A
 b) Both A and R are true and R is not correct explanation of A
 c) A is true but R is false
 d) A is false but R is true

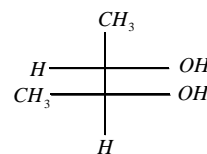
162. **The geometrical isomerism is shown by**



163. **Which of the following compounds contains $1^0, 2^0, 3^0$ as well as 4^0 carbon atoms**
 a) Neopentane b) 2-methyl pentane c) 2,3-dimethyl butane d) 2,2,3-trimethyl pentane

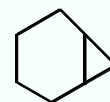
164. **Correct configuration of the following as**

- a) 3S,2S b) 3S,2R
 c) 3R,2R d) 3R,2S



165. **The correct name for the following hydrocarbon is**

- a) Tricyclo [4,1,0] heptane b) Bicyclo [5,2,1] heptane
 c) Bicyclo [4,1,0] heptane d) Bicyclo [4,1,0] hexane



166. **The Beilstein test for organic compounds is used to detect**

- a) nitrogen b) sulphur c) carbon d) halogens

167. **The process of separation of a racemic modification into d and l -enantiomers is called**

- a) Resolution b) Dehydration c) Revolution d) Dehydrohalogenation

168. **Identify the compound that exhibits tautomerism**

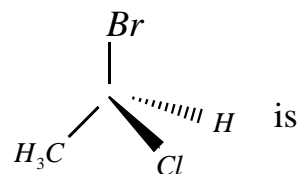
- a) 2-pentanol b) Phenol c) 2-butanone d) Lactic acid

169. **Lassaigne's test for the detection of nitrogen fails in**

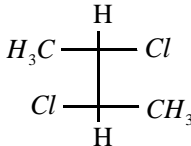
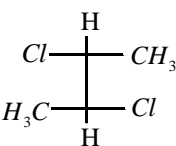
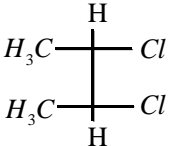
- a) $NH_2CONHNH_2.HCl$ b) $NH_2NH_2.HCl$ c) NH_2CONH_2 d) $C_6H_5NHNH_2.HCl$

170. **The chirality of the compound**

- a) R b) S
 c) E d) Z



171. **Which of the following is optically inactive**

- a)  b)  c)  d) None of these

172. **The most suitable method for separation of a 1:1 mixture of ortho and para nitrophenols is**

- a) sublimation b) chromatography c) crystallization d) steam distillation

Adyar, Chennai is an initiative that was started to bring the quality of the most experienced faculty team in Tamil Nadu to your own NEET preparation process. We are releasing a chapter wise test series every week. Download them and take the test! When the answer key is released the next day, you get to evaluate yourself.

Test	Date	BOTANY	ZOOLOGY	PHYSICS	CHEMISTRY
TEST - 1	2/9/2018	Morphology of Flowering Plants (Root, Stem, Leaf, Flower, Inflorescence)	The Living World	Physical World, Units and Measurements,	Structure of Atom
TEST - 3	16/09/2018	Morphology of Flowering Plants (Fruits & Taxonomy)	Animal Kingdom - Non Chordates	Motion in a Straight Line	Classification of Elements and Periodicity in Properties
TEST - 5	30/09/2018	Anatomy of Flowering Plants	Animal Kingdom - Chordates - Fishes, Amphibia, Reptilia, Aves & Mammalia	Motion in a Plane	Chemical Bonding and Molecular Structure
TEST - 7	14/10/2018	Cell: The Unit of Life	Animal Kingdom - Earth Worm, Cockroach, Frog	Laws of Motion	States of Matter
TEST - 9	28/10/2018	Biomolecules, Cell Cycle and Cell Division	Structural Organisation	Work, Energy and Power	Thermodynamics
TEST - 11	11/11/2018	Plant Physiology- Transport in Plants	Human Physiology: Digestion and Absorption	System of Particles and Rotational Motion	Chemical Equilibrium and Ionic Equilibrium
TEST - 13	25/11/2018	Mineral Nutrition	Breathing and Exchange of Gases	Gravitation	Some Basic Concepts of Chemistry, Redox Reactions
TEST - 15	9/12/2018	Photosynthesis in Higher Plants	Body Fluids and Circulation	Mechanical Properties of Solids	Hydrogen & Its Compounds
TEST - 17	23/12/2018	Respiration in Plants	Elimination of Excretory Products	Mechanical Properties of Fluids	The S-Block Elements (IA & IIA Group Elements)
TEST - 19	6/1/2019	Plant Growth and Development	Locomotion and Movement	Thermal Properties of Matter	The P-Block Elements (IIIA & IVA Group Elements)
TEST - 21	20/1/2019	Biological Classification	Neural Control and Co-ordination	Thermodynamics, Kinetic Theory,	Organic Chemistry – Some Basic Principles and Techniques
TEST - 23	3/2/2019	Plant Kingdom	Chemical Co-ordination and Integration	Oscillations, Waves	Hydrocarbons Alkanes, Alkenes, Alkynes & Benzene

Test	Date	BOTANY	ZOOLOGY	PHYSICS	CHEMISTRY
TEST - 2	9/9/2018	Reproduction in Organisms - Plants	Human Reproductive System	Electric Charges and Fields,	The Solid State
TEST - 4	23/9/2018	Sexual Reproduction in Flowering Plants	Reproductive Health	Electrostatic Potential and Capacitance	Dilute Solutions
TEST - 6	7/10/2018	Sexual Reproduction in Flowering Plants	Principles of Inheritance and Variation	Current Electricity	Electrochemistry
TEST - 8	21/10/2018	Principles of Inheritance and Variation	Molecular Basis of Inheritance	Moving Charges and Magnetism	Chemical Kinetics
TEST - 10	4/11/2018	Principles of Inheritance and Variation	Evolution	Magnetism and Matter	Surface Chemistry
TEST - 12	18/11/2018	Molecular Basis of Inheritance	Human Health and Diseases	Electromagnetic Induction, Alternating Current	General Principles and Processes of Isolation of Elements
TEST - 14	2/12/2018	Molecular Basis of Inheritance	Strategies for Enhancement in Food Production	Electromagnetic Waves, Communication Systems	The P-Block Elements
TEST - 16	16/12/2018	Strategies of Enhancement in Food Production	Biotechnology and its Applications	Ray Optics and Optical Instruments	The D-And F-Block Elements, Coordination Compounds
TEST - 18	30/12/2018	Microbes in Human Welfare	Organisms and Population	Wave Optics	Haloalkanes and Arenes, Alcohols, Phenols and Ethers
TEST - 20	13/1/2019	Biotechnology - Principles and Processes	Eco System	Dual Nature of Radiation and Matter	Aldehydes, Ketones and Carboxylic Acids
TEST - 22	27/1/2019	Biotechnological Applications in Medicine	Biodiversity and Conservation	Atoms, Nuclei	Amines, Chemistry in Everyday Life
TEST - 24	10/2/2019	Plant Ecology	Environmental Issues	Semiconductor Electronics: Materials, Devices and Simple Circuits	Biomolecules, Polymers

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 2. Darken the Circle in the space provided only.
 3. Use of White fluid or any other material, which damages the answer sheet, is not allowed.
 4. Do not staple, tear or scribble on the answer sheet.

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