

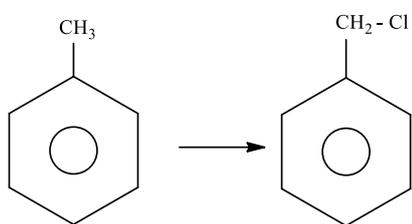
| SUBJECTS | XI STD | DT – 85 | NEET QP |
|---|---|---------------------------|---------|
| PHYSICS | THERMODYNAMICS (S1) | | |
| CHEMISTRY | GENERAL ORGANIC CHEMISTRY SOME BASIC PRINCIPLES AND TECHNIQUES (S7) | | |
| BIOLOGY | PLANT GROWTH AND DEVELOPMENT (PP) | | |
| <i>TOTAL MARKS – 160</i> | | <i>DURATION – 40 mins</i> | |
| <i>EACH QUESTION CARRIES 4 MARKS. (-1 MARK) FOR WRONG ANSWER.</i> | | | |

PHYSICS

- In a thermodynamic process, 200 joules of heat is given to a gas and 100 joules of work is also done on it. The change in internal energy of the gas is
a) 100 J b) 300 J c) 419 J d) 24 J
- In a given process for an ideal gas, $dW = 0$ and $dQ < 0$. Then for the gas,
a) The temperature will decrease b) The volume will increase
c) The pressure will remain constant d) The temperature will increase
- The specific heat of hydrogen gas at constant pressure is $C_p = 3.4 \times 10^3 \text{ cal kg}^{-1} \text{ }^\circ\text{C}^{-1}$ and at constant volume is $C_v = 2.4 \times 10^3 \text{ cal kg}^{-1} \text{ }^\circ\text{C}^{-1}$. If one kilogram hydrogen gas is heated from 10°C to 20°C at constant pressure, the external work done on the gas to maintain it at constant pressure is
a) 10^5 cal b) 10^4 cal c) 10^3 cal d) $5 \times 10^3 \text{ cal}$
- A system is provided with 200 cal of heat and the work done by the system on the surrounding is 40 J. Then its internal energy
a) Increases by 600 J b) Decreases by 800 J
c) Increases by 800 J d) Decreases by 50 J
- A perfect gas goes from state A to another state B by absorbing $8 \times 10^5 \text{ J}$ of heat and doing $6.5 \times 10^5 \text{ J}$ of external work. It is now transferred between the same two states in another process in which it absorbs 10^5 J of heat. Then in the second process,
a) Work done on the gas is $0.5 \times 10^5 \text{ J}$ b) Work done by gas is $0.5 \times 10^5 \text{ J}$
c) Work done on the gas is 10^5 J d) Work done by the gas is 10^5 J
- In an isothermal expansion,
a) Internal energy of the gas increases
b) Internal energy of the gas decreases
c) Internal energy remains unchanged
d) Average kinetic energy of gas molecules decreases
- A cylinder fitted with a piston contains 0.2 moles of air at temperature 27°C . The piston is pushed so slowly that the air within the cylinder remains in thermal equilibrium with the surroundings. Find the approximate work done by the system if the final volume is twice the initial volume.
a) 543 J b) 345 J c) 453 J d) 600 J

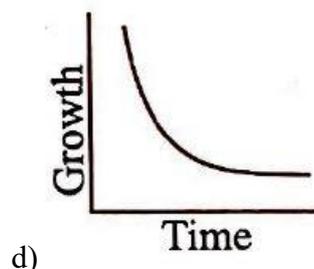
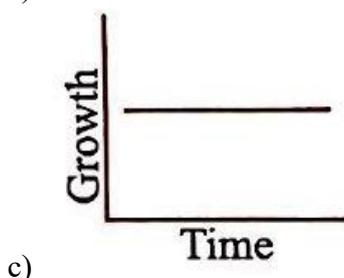
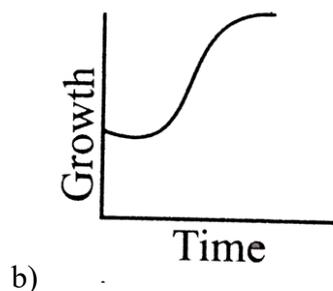
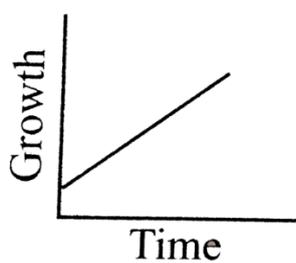
8. A monoatomic gas ($\gamma = 5/3$) is suddenly compressed to $\frac{1}{8}$ of its original volume adiabatically. Then the pressure of the gas will change to x times its initial pressure. Find x .
- a) $\frac{24}{5}$ b) 8 c) $\frac{40}{3}$ d) 32
9. An ideal gas at 27°C is compressed adiabatically to $\frac{8}{27}$ of its original volume. If $\gamma = \frac{5}{3}$, then the rise in temperature is
- a) 450 K b) 375 K c) 225 K d) 405 K
10. A container having 1 mole of a gas at a temperature 27°C has a movable piston which maintains at constant pressure in container of 1 atm. The gas is compressed until temperature becomes 127°C . The work done is nearly (C_p for gas is $7.03 \text{ cal mol}^{-1}\text{K}^{-1}$)
- a) 703 J b) 814 J c) 121 J d) 2035 J

CHEMISTRY



11. The above reaction proceeds through
- a) Nucleophilic substitution b) Electrophilic substitution
c) Free radical substitution d) More than one of the above processes
12. In electrophilic substitution reaction nitrobenzene is
- a) Meta-directing b) Ortho-directing
c) Para-directing d) Not reactive and does not undergo any substitution
13. Geometry of reaction intermediate in SN^1 reaction is
- a) Tetrahedral b) Planar
c) Triangular bipyramidal d) None of these
14. In which type of reaction do two molecules combine to form a single product?
- a) Polymerization b) Substitution
c) Elimination d) Addition
15. Which is an electrophile.
- a) BCl_3 b) CH_3OH c) NH_3 d) AlCl_4^-
16. The following compound will undergo electrophilic substitution more readily than benzene
- a) Nitrobenzene b) Benzoic acid
c) Benzaldehyde d) Phenol
17. $\text{CH}_3 - \text{Br} + \text{NH}_3 \rightarrow \text{CH}_3 - \text{NH}_2 + \text{HBr}$
The above reaction is classified as
- a) Substitution b) Addition
c) Elimination d) Rearrangement

23. Which plant growth regulator is used to induce parthenocarpy in tomato?
 a) Auxin
 b) Gibberellic acid
 c) ABA
 d) Ethylene
24. Hormone involved in canary grass experiment is
 a) auxin
 b) gibberellin
 c) kinetin
 d) ethylene
25. Which plant hormone induces the phenomenon of phototropism in plants?
 a) Auxins
 b) Ethylene
 c) Cytokinin
 d) Gibberellin
26. Experiments done by Charles Darwin and his son on plant phototropism showed that
 a) auxin is produced in the tip of the coleoptile
 b) the tip of the coleoptile is the light receptor of the plant
 c) auxin moves away from light source
 d) shaded side of plant possess more elongation
27. Who isolated auxin from tips of coleoptiles of oat seedlings?
 a) Darwin and Darwin
 b) Went
 c) Skoog et al.
 d) Kurosawa
28. Growth can be measured in various ways. Which of these can be used as parameters to measure growth?
 a) Increase in cell number
 b) Increase in cell size
 c) Increase in length and weight
 d) All the above
29. Given below are two statements:
Statement I: Plant growth and development depends on the water status of plant.
Statement II: Turgidity of cells requires water that helps in regression of growth.
 In the light of the above statements, choose the most appropriate answer from the options given below.
 a) Both statement I and statement II are correct
 b) Both statement I and statement II are incorrect
 c) Statement I is correct but statement II is incorrect
 d) Statement I is incorrect but statement II is correct
30. Which one is the correct graph for arithmetic growth?



31. Auxins were first isolated from
 a) Oat coleoptile tips
 b) Yeast extract
 c) Coconut milk
 d) Human urine

32. All the changes that occur in the life cycle of a plant from seed germination to senescence is called
- a) Growth
 - b) Development
 - c) Morphogenesis
 - d) Redifferentiation
33. All GAs (gibberellins) are _____.
- a) basic in nature
 - b) neutral steroids
 - c) acidic diterpenoids
 - d) phenolic compounds
34. Select the incorrect statement
- a) Ethylene promote root hair formation
 - b) ABA is a derivative of carotenoids
 - c) Cytokinins promote apical dominance
 - d) Auxins induce parthenocarpy in tomatoes
35. The chemical inhibitor which induces dormancy in seeds
- a) GA
 - b) ABA
 - c) Auxin
 - d) All the above
36. PGR responsible for inhibition of seed germination
- a) Auxin
 - b) GA
 - c) Cytokinin
 - d) ABA
37. Which option best exemplifies the antagonistic actions of ABA and GAs in plants?
- a) ABA maintains seed dormancy, whereas GA breaks dormancy and induces α -amylase for seed germination
 - b) ABA promotes stem elongation, whereas GA inhibits stem elongation
 - c) ABA triggers fruit ripening, whereas GA prevents ripening
 - d) ABA causes stomatal opening, whereas GA causes stomatal closure
38. All of the following are the physiological effects of cytokinins except
- a) Delay of leaf senescence
 - b) Adventitious shoot formation
 - c) Apical hook formation in dicot seedlings
 - d) Formation of new leaves
39. In rice plants, foolish seedling disease is caused by
- a) Bacteria
 - b) Fungi
 - c) Nematode
 - d) Virus
40. Which statement about plant growth is correct?
- a) Growth involves only anabolic processes and releases energy
 - b) Growth is accompanied by anabolic and catabolic processes that occur at the expense of energy
 - c) Growth occurs without metabolic involvement
 - d) Growth stores energy rather than requiring it