

- The radiant energy of sun is due to
  - disintegration
  - nuclear fission
  - nuclear fusion
  - combustion
- Radial probability at the nucleus is
  - maximum
  - zero
  - minimum
  - none of these
- Cadmium in a nuclear reactor acts as
  - nuclear fuel
  - moderator
  - neutron absorber
  - neutron liberator to start the chain
- The ionization potential of the atom is not affected by
  - electro neutrality with protons
  - atomic size
  - nuclear charge
  - penetration effect
- Calculated bond order of super oxide ion is
  - 1.5
  - 1
  - 2.5
  - 2
- The geometrical shape of the molecule sulphur tetra fluoride is
  - tetrahedral
  - see saw
  - T shaped
  - square planar
- The percentage p-character in the orbitals forming P-P bonds in phosphorus molecule
  - 25
  - 33
  - 50
  - 75
- The electronic configuration of an element is  $1s^2 2s^2 2p^6 3s^2 3p^6 3d^5 4s^1$ . This represents its
  - excited state
  - ground state
  - cationic form
  - anionic form
- Which of the following element has highest value of ionization potential ?
  - xenon
  - hydrogen
  - potassium
  - helium

10. The first experimental evidence of de-Broglie's hypothesis came from the experiments of
- A) Thomson  
B) Davison and Germer  
C) Dirac  
D) Heisenberg
11. Human body is an example of
- A) open system  
B) closed system  
C) isolated system  
D) macroscopic system
12. If a refrigerator's door is kept open then
- A) room will be cooled  
B) room will be heated  
C) may get cooled or heated depending upon weather  
D) no effect in the room
13. The rate of reaction does not depend on
- A) pressure  
B) temperature  
C) concentration  
D) catalyst
14. The efficiency of a heat engine is maximum when
- A) the temperature of source is greater than sink  
B) the temperature of sink is greater than source  
C) the temperature difference of source and sink is minimum  
D) the temperature difference of source and sink is maximum
15. A spontaneous change is one in which the system suffers
- A) an increase in internal energy  
B) a lowering of free energy  
C) a lowering of entropy  
D) no energy change
16. The unit and value of rate constant and that of rate of reaction are same for
- A) first order  
B) second order  
C) zero order  
D) none of these

17. The activation energy of a reaction is zero. But the rate constant of reaction
- A) increases with increase in temperature
  - B) decreases with decrease in temperature
  - C) decreases with increase in temperature
  - D) independent of temperature
18. If for a first order reaction, the values of A and  $E_a$  are  $4 \times 10^{13} \text{sec}^{-1}$  and 98.6 KJ/mol respectively, then at what temperature will its half life period be 10 minutes ?
- A) 330K
  - B) 300K
  - C) 330.95K
  - D) 311.15K
19. Which among the following compound is a state function ?
- A) heat
  - B) internal energy
  - C) reversible expansion work
  - D) irreversible expansion work
20. The pH of a solution is 5.0. Its hydrogen ion concentration is decreased hundred times. The solution then will be
- A) more acidic
  - B) basic
  - C) neutral
  - D) of the same acidity
21. An  $S_N2$  reaction at an asymmetric carbon of a compound always gives
- A) an enantiomer of the substrate
  - B) a product with opposite optical rotation
  - C) a mixture of diastereomers
  - D) single stereoisomers
22. The reaction of propene with HOCl proceeds via the addition of
- A)  $H^+$  in the first step
  - B)  $OH^-$  in the first step
  - C)  $Cl^+$  in the first step
  - D)  $Cl^+$  and  $OH^-$  in a single step
23. The two forms of D-glucopyranose obtained from the solution of D-glucose are called
- A) isomer
  - B) anomer
  - C) epimer
  - D) enantiomer
24. Compounds containing chromophoric groups are called
- A) chromogens
  - B) auxochromes
  - C) azo compounds
  - D) dyes

25. Bakelite is a polymer of
- A) hexamethylene diamine and adipic acid
  - B) phenol and formaldehyde
  - C) butadiene and styrene
  - D) butadiene and acrylonitrile
26. The formation of 2-aminopyridine by reaction between pyridine and sodamide is known as
- A) Diels-Alder reaction
  - B) Chichibabin reaction
  - C) Mannich reaction
  - D) Paal-Knorr synthesis
27. Which is the strongest base ?
- A) ammonia
  - B) methyl amine
  - C) dimethyl amine
  - D) trimethyl amine
28. Hyper conjugation involves
- A) delocalisation of  $\sigma$  electrons with an adjacent  $\pi$  bond
  - B) delocalisation of  $\pi$  electrons with an adjacent double bond
  - C) delocalisation of  $\pi$  electrons with lone pair of electrons of an adjacent atom
  - D) delocalisation of  $\sigma$  electrons with lone pair of electrons of an adjacent atom
29. Gun cotton is
- A) sodium cellulose xanthate
  - B) cellulose triacetate
  - C) cellulose xanthate
  - D) cellulose trinitrate
30. Which carbanion is more stable ?
- A) methyl carbanion
  - B) ethyl carbanion
  - C) isopropyl carbanion
  - D) tertiary butyl carbanion
31. The square of standard deviation
- A) mode
  - B) mean deviation
  - C) variance
  - D) median
32. Student's t test was contributed by
- A) William Gosset
  - B) Simeon Denis Poisson
  - C) Quetelet
  - D) James Bernoulli

33. In thin layer chromatography the spots of colourless compounds which are invisible to the eye can be detected by using  
A) chlorine            B) iodine            C) bromine            D) fluorine
34. The light source in AAS  
A) photoelectric cell            B) halogen lamp  
C) tungsten lamp            D) hollow cathode lamp
35. Eutrophication is due to  
A) heavy metal pollutants            B) common nutrients  
C) carbon dioxide            D) sulphur
36. A secondary pollutant  
A) fog            B) smoke  
C) smog            D) nitrogen
37. Temporary hardness is due to  
A) bicarbonates of calcium and magnesium  
B) carbonates of calcium and magnesium  
C) chlorides of calcium and magnesium  
D) sulphates of calcium and magnesium
38. The disease caused by iron in drinking water  
A) minamata            B) siderosis  
C) itai-itai            D) fluorosis
39. A green house gas  
A) sulphur dioxide            B) nitrogen  
C) hydrogen            D) carbon dioxide
40. A pathogen is  
A) salmonella typhi            B) pseudomonas  
C) acetobacter            D) penicillium notatum

41. In captive breeding which weed fishes are cultured together ?  
A) Grass carp, Gourami  
B) Tilapia, Cobia  
C) Common carp, Grey carp  
D) Silver barb, Danio
42. In which State of India Rampani nets are used for fishing ?  
A) Karnataka  
B) Kerala  
C) Tamil Nadu  
D) Andhra Pradesh
43. World Fisheries Day is  
A) November 21  
B) July 10  
C) April 20  
D) June 5
44. Which country comes first in both capture and culture fisheries ?  
A) India  
B) China  
C) Indonesia  
D) Taiwan
45. Phytoplankton contains C : N : P in the ratio of  
A) 100 : 17 : 2.4  
B) 100 : 16 : 2.4  
C) 75 : 16 : 2.4  
D) 75 : 17 : 2.4
46. The science dealing with the various systems of inland waters, usually fresh water, is called  
A) Limnology  
B) Oceanography  
C) Hydrology  
D) None
47. Identify the correct order in which the lentic series evolved.  
A) Ponds, Bogs, Swamps, Lakes  
B) Lakes, Ponds, Bogs, Swamps  
C) Swamps, Lakes, Ponds, Bogs  
D) Lakes, Swamps, Ponds, Bogs
48. Which areas in the oceans are rich in fish population ?  
A) Upwelling area  
B) Pelagic region  
C) Benthic region  
D) None



57. Cyst of brine shrimp hatches out as  
A) Mysis                      B) Nauplii                      C) Zoea                      D) Protozoa
58. Chlorella culture thrives well in the salinity range of  
A) 40 ppt                      B) 10-20 ppt                      C) 1-5 ppt                      D) None
59. Carrying capacity of one ha ponds fed with protein rich pellet is  
A) About 2,680 kg                      B) About 5,000 kg  
C) About 5,680 kg                      D) 5,580 kg
60. Breeding traps are generally used for  
A) Gold fish                      B) Danios                      C) Live bearers                      D) Anabantids
61. Supplemental diets in aquaculture are intended  
A) To ensure that fish in high density confined aquaculture systems do not starve  
B) To supply all the ingredients such as protein, carbohydrates, fats, vitamins and minerals  
C) To help support the natural food  
D) None
62. Protein requirement is generally high for  
A) Smaller fish                      B) Larger fish                      C) Male fish                      D) Female fish
63. The serious health problem in fish fed artificial feed stored in damp conditions due to a toxic metabolite produced by certain fungi is  
A) Saprolegniasis                      B) Branchiomycosis  
C) Aflatoxicosis                      D) Mycosis
64. Limivorous fish feed mainly on  
A) Aquatic plants                      B) Fish larvae  
C) Crustacean larvae                      D) Algae and micro-organisms in mud