**BIT BANK OF PHYSICS & CHEMISTRY**

**1. Reflection of Light through curved surface**

1. Which of the following does not lie in the plane of reflection? [ ]

A. Reflecting surface B. Incident ray C. Normal at the point of incidence D. Reflected ray

2. The image formed by a concave mirror is virtual, erect and magnified. The position of the object is [ ]

A. at F B. Between F and C C. at P D. Between P and F

3. The minimum distance from real objects to real image in a concave mirror is…. [ ]

A. f B. 0 C. D. 2f

4. Which of the following is true in case of virtual image? [ ]

A. Always erect B. Always inverted C. Obtained on screen D. None of the above

**2. Chemical equactions**

5. Select the incorrect balanced chemical equation of the following [ ]

A. + B.

B. D. 2

6. What happens when dil. Hydrochloric acid is added to iron fillings? Choose the correct answer.[ ]

A. Hydrogen gas and iron chloride are produced. B. Chlorine gas and iron hydroxide are produced

C. No reaction takes place D. Iron salt and water are produced

7. Number of moles of oxygen needed to produce 4 moles of water on reacting with 4 moles of

hydrogen gas is…… [ ]

A. 1 mole B. 2 moles C. 3 moles D. 4 moles

8. Which of the following reactions is exothermic reaction? [ ]

A. C+ B. C. 2AgCl D. Zn+2HCl

9. In the reaction Na+ how many moles of Na and react together to

form NaoH and [ ]

A. 2,2 B. 2,1 C. 1,1 D. 1,2

10. Calculate the mass of hydrogen liberated when 230 grams of sodium reacts with excess of water

(Atomic weight of Na = 23) [ ]

A.5 grams B. 10 grams C. 23 grams D. 1gram

11. The number of moles of can reat with 1 mole of sodium carbonate is [ ]

A. 1 B. 3 C. 2 D.

**3. Acids, Bases and Salts**

12. The reaction that takes place when quicklime is added to water is …….. [ ]

A. displacement reaction B. gas liberating reaction C. heat liberating reaction D. combustion reaction

13. Salt formed from a weak acid and strong base pH value is …………… [ ]

A. <7 B. >7 C. 7 D.

14. When dilute hydrochloric acid is added to iron filings [ ]

A. Hydrogen gas and iron chloride are formed B. Chlorine gas and iron hydronide are formed

C. No reaction takes place D. Iron salt and water are produced

15. solution with and produces [ ]

A. gas B. NaH (Sodium hydride) C. D. gas

16. A solution turned pink when a drop of phenolphthalein was added to it. Then the probable pH

of that solution is [ ]

A. 5 B. 6 C. 7 D. 10

17. Nature of substance applied on skin when a honey bee stungs? [ ]

A. strong acid B. strong base C. weak acid D. weak base

**4. Refraction through curved surface**

18. Which one of the following materials cannot be used to make a lens? [ ]

A. Water B. Glass C. Plastic D. Clay

19. The number of images formed by a lens made up of three different material is …… [ ]

A. 1 B. 2 C. 3 D. 4

20. The lens which is thin at the middle on both sides and thicker at the edges is …… [ ]

A. bi-convex B. concave-convex C. plano-concave D. biconcave

21. The lens which can form real and virtual image in air is …….. [ ]

A. bi convex B. bi concave C. plano concave D. plano convex

**5. Human eye and colourfull world**

22. Blue colour of the sky is due to ……………molecules present in the atmosphere [ ]

A. Water vapour and Krypton B. Carbon dioxide and Carbon monoxide

C. Nitrogen and Oxygen D. Krypton and Carbon monoxide

23. In case of eye defect called “Myopia” image is formed ……. [ ]

A. after retina B. before retina C. on retina D. none of the above

24. The colour in the sequence VIBGYOR that has least wavelength is …………. [ ]

A. dispersion B. scattering C. refraction D. reflection

25. The splitting of white light into different colours is called …………. [ ]

A. dispersion B. scattering C. refraction D. reflection

26. Which of the following molecules in atmosphere are responsible for blue colour of sky? [ ]

A. B. He, C. CO, D.

27. Light is a/an…… [ ]

A. longitudinal wave B. stationary wave C. electromagnetic wave D. none of these

28. Which part of human eye is called “ Variable aperture” [ ]

A. Retina B. Cornea C. Pupil D. Lens

29. Select the correct statement of the following [ ]

A. The least distance of distinct vision at below 10 years age is 7-8 cm

B. The least distance of distinct in old age is 1m or even more

C. If angle of vision is above 60 then we can see only the part of the object

D. Angle of vision and lest distance of distinct vision are same for all persons

30. In prism experiment, the i-d curve looks like………….. [ ]

A. straight line B. circle C. parabola D. elipse

31. Which one of the following phenomena of light are involved in the formation of a rainbow? [ ]

A. Refraction, dispersion B. Refraction, dispersion and total reflection

C. Reflection, refraction and dispersion D. Dispersion, scattering and total internal reflection

32. One of the uses of a concave lens is ….. [ ]

A. as eye piece in microscope B. to focus the sunlight at a point

C. to correct hypermetropia D. to correct mypia

33. If a person uses a lens of – 2.5D power, then the focal length of the lens is ……… [ ]

A. 40cm B. 50cm C. -40cm D. -50cm

**6. Structure of Atom**

34. Which principle states that “No two electrons of the same atom can have all the four quantum

numbers the same?” [ ]

A. Pauli’s B. Aufbau C. Hund’s D. Bohr’s

35. The coordination number of is [ ]

A. 3 B. 4 C. 5 D. 6

36. Who proved that “vital force theory” in not correct? [ ]

A. Berzelius B. Linus Pauling C. Wohler D. Dalton

37. Which of the following quantum number describes the orientation of orbital in spaces around

the nucleus of atom? [ ]

A. Magnetic quantum number B. Spin quantum number

C. Angular momentum quantum number D. Principal quantum number

38. The maximum number of electrons in n=3 main energy level given is ……. [ ]

A. 8 B. 16 C. 18 D. 32

39. The maximum number of electrons that can occupy a main shell (n)are……. [ ]

A. 2n B. C. D. n

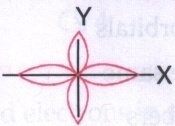
40. If n=3 and =2 the energy level represented as…….. [ ]

A. 3s B. 3p C. 3d D. 3f

41. Principal Quantum number 3 refers to …….. [ ]

A. M-main shell B. f – sub shell C. N-main shell D. d- sub shell

42. To which boundary surface diagram of d-orbital indicates? [ ]

A. B. C. D.  

43. The electronic structure of the atom that is correctly explained by Bohr’s theory in the following, is .. [ ]

A. Hydrogen atom B. Helium atom C. Carbon atom D. All atoms

**7. Classification of Eliments & Periodic Table**

44. A dobereiner’s Triad in the following, is ……. [ ]

A. B. H, He, Li C. D. C, N, O

45. Which of the following elements lose three valence electrons to get octet in its outer shell? [ ]

A. Cs B. Mg C. O D. Al

46. How many s-block elemens and p- block elements are there in the third period of the periodic

table? [ ]

A. 2,8 B. 8,2 C. 4,4 D. 2,6

47. Modern periodic law states that the properties of elements are functions of their [ ]

A. atomic weights B. atomic number C. electronic configurations D. Both B and C

48. Which of the following is the p-block element? [ ]

A. Ti B. Ce C. Ga D. K

49. The pair of atomic numbers which belong to the ‘p’ block elements is …… [ ]

A. 3,5 B. 11,12 C. 7,8 D. 12,13

50. Metalloids are [ ]

A. s-block elements B. d-block elements C. f-block elements D. p-block elements

51. Which one of the following decreases in a group from top to bottom? [ ]

A. Atomic size B. Metallic nature C. Electro positivity D. Electronegativity

52. The ionization energy in the periodic table [ ]

A. decreases go down the group B. increases go down the group

B. decreases from left to right in a period D.remains same go down group

53. What type of oxide would Eka-aluminium form ? [ ]

A. B. C. D. EO

52. Which of the following pair, has same properties? [ ]

A. Na,K B. Na, Mg C. O, F D.

53. Number of vertical columns in the modern periodic table are…(As per IUPAC notification) [ ]

A. 7 B. 8 C. 10 D. 18

54. The element with negative charge having the electronic configuration 2,8,8 is… [ ]

1) B. C. D.

A. 1,2 only B. 1,2,3 only C. 2,3,4 only D. 4 only

**8. Chemical Bonding**

55. The outermost shell of a representative element contains X electrons and remaining shells

electrons are y electrons. The number of electrons could be: [ ]

A. y-x B. y C. x D. x+y

56. Which of the following does not have an ionic bond…….. [ ]

A. B. C. D.

57.Bond energy of is……… [ ]

A. 410 KJ B. 432 KJ C. 460 KJ D. 480 KJ

58. The molecule involves hybridization is ……. [ ]

A. B. C. D. All of these

59. The condition for the formation of ionic bond is ………………… [ ]

A. elements involved should of equal size B. high electropositivity of atom

C. atoms should have low ionization potential D. elements with high electronegativity difference

60. Match the following

i. 10431 [ ] a.

ii. 180 [ ] b.

iii. 107 [ ] c. BeC

iv. 120 [ ] d. O

A. id,ii B. i

C. i D. i

61. The shape of the ammonia molecule is …… [ ]

A. linear B. trigonal planar C. pyramidal D. tetra hydral

62. The valence shell of the central atom of a molecule has four bond – pairs of electrons. Shape of the

molecule is [ ]

A. linear B. plane triangular C.square planar D. tetrahedral

63. Ionic compound in the following is [ ]

A. B. C. D.

64. 2,8,1 and 2,8,7 are electronic configurations of A and B elements combine to form a molecule. Its

formula is …. [ ]

A. AB B. C. D.

111. The least electronegative element is ……………. [ ]

A. Cs B. F C. C D. H

112. Elements P,Q, R and S have atomic number as 9,17,19,35, respectively. Choose the odd element [ ]

A. P B. Q C. R D. S

113. Number of vertical columns is the modern periodic table are …. (As per IUPAC notation) [ ]

A. 7 B. 8 C. 10 D. 18

114. Choose the correct answer for the following matching [ ]

Group – A Group – B

i. Pyramidal shape [ ] a.

ii. V- shape [ ] b.

iii. Tetrahedral [ ] c.

iv. Linear [ ] d.

A. i – c, ii-d, iii-b, iv a B. i-a, ii – b, iii–d, iv –c C. i-c, ii-a, iii – d, iv –b D. i-a, ii-d, iii-b, iv-c

115. The element with negative charge the electronic configuration 2,8,8 is [ ]

1. 2. 3. 4.

A. 1,2 only B. 1,2,3 only C. 2,3,4 only D. 4 only

116. Ionic bond is formed between atoms of elements with electronegativity differences ….. [ ]

A. > 1.7 B. < 1.7 C. > 1.9 D. < 1.9

117. is formed when element ‘A’ reacts hydrogen. Then the number of electrons in valence shell of ‘A’

are generally [ ]

A. 2 B. 3 C. 5 D. 8

**9. Electrical current**

65. The unit of potential difference is [ ]

A. Volt B. watt/ampere C. joule/coulomb D. All

66. Which of the following is true for conductor like metals according to Lorentz-Drude theory? [ ]

A. Negative ions are fixed B. Positive ions move C. Positive ions are fixed D. None of the above

67. A bulb is marked 60 W and 12V is connected to a 12V source, its power will be [ ]

A. 60W B. 6W C. 0.6W D. 0.06W

68. At the time of short circuit, the current in circuit ….. [ ]

A. not changes B. decreases C. increases D. can’t say

69. The potential difference is measured with [ ]

A. Ammeter B. Galvanometer C. Battery D. Voltmeter

70. Two resistors are connected in…. Then same current flows through two resistors [ ]

A. series B.parallel C. series and parallel D. None of the above

71. The resistance of conductor depends on [ ]

A. length B. cross-sectional area C. temperature D. all the above

72. Which of the following is correct regarding electricity? [ ]

A. B. C. P= D. P=VIR

73. Match the following [ ]

i. Current [ ] a. Volt

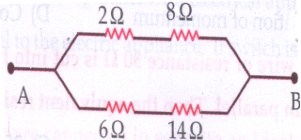
ii. Resistance [ ] b. Ampere

iii. Potential difference [ ] c. Ohm meter

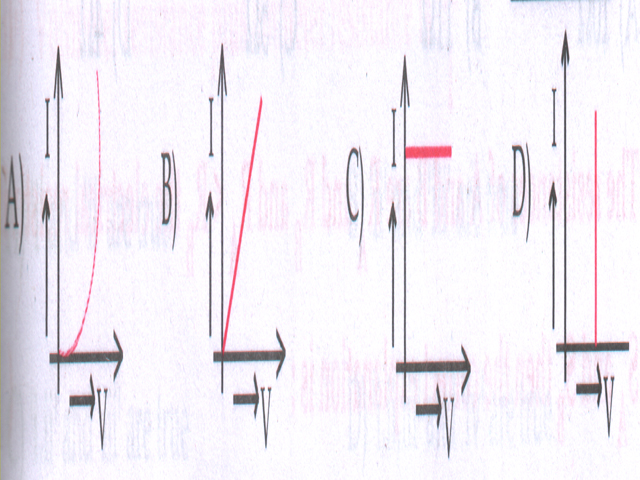
iv. Resistivity [ ] d. Ohm

A. i-b, ii-a, iii-d, iv-c B. i-a, ii-b, iii-c, iv-d C. i-a, ii-b, iii-d, iv-c D. i-b, ii-d, iii-a, iv-c

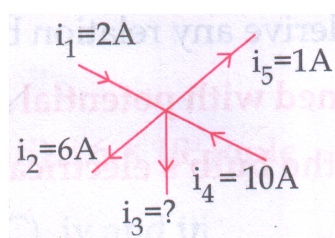
74. The effective resistance of the combination between points A and B as shown in the adjacent diagram is [ ]

A.  B.  C.  D.  

75. In case of non-ohmic materials, the V-I graph is [ ]



76. Apply Kirchhoff’s Junction law and find value of the following figure [ ]

A. 19A B. 5A C. 2A D. 1A 

77. The instrument used to check the emf of a battery is….. [ ]

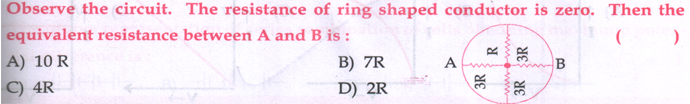
A. Voltmeter B. Ammeter C. Galvanometer D. Electric Tester

78. Heater coils are prepared with [ ]

A. copper B. gold C. silver D. nichrome, manganin

79. Every day a 60W bulb is used for 8 hours. The amunt of energy utilized in 30 days in kilowatt hours….[ ]

A. 5.2 B. 7.2 C. 14.4 D. 16.2

118. 

**10. Electro Magnetisam**

101. The device used for producing electric current is called a [ ]

A. Generator B. Galvanometer C. Ammeter D. Motor

102. Magnetic flux density (B) = ………….. [ ]

A. Area/Magnetic flux B. Length/Magetic flux C. Magnetic flux/Length D. Magneticflux/ Area

103. The magnetic field is called uniform if [ ]

A. Strength and derection of magnetic field are changing B. Strength and direction of magnetic field are constant

C. only magnetic field strength is constant D. only direction of magnetic field is constant

104. Whenever there is continuous change of magnetic flux linked with closed coil a current is

generated in coil. This is …. [ ]

A. Lenz’s law B. Ampere’s law C. Faraday’s law D. Ohm’s law

105. Which converts electrical energy into mechanical energy? [ ]

A. Motor B. Battery C. Generator D. Switch

106. Which converts electrical energy into mechanical energy ? [ ]

A. Motor B. Battery C. Generator D. Switch

107. Which of the following electrical devices works on the principle of electro – magnetic induction? [ ]

A. Electric fan B. Electric bulb C. Electric cooker D. L.E.D.

108. The peak value of alternative current is 2 ampere. The r.m.s. value of current is ….. [ ]

A. B. C. D.

109. A conductor of length of 1m moving with velocity ‘V’ perpendicular rto the magnetic field

of strength 10 tesla induces an e.m.f. of volts. Then V = …………… [ ]

A. 100 B. 10 C. 1 D. 0.1

110. Which of the following equations is correct in electro magnetism? [ ]

A. B. F = C. D.

119. If the length and diameter of a conductor both are halved, the resistance of the conductor becomes [ ]

A. 4 times B. doubled C. does not change D. halved

120. The device used for producing electric current is called a [ ]

A. Generator B. Galvanometer C. Ammeter D. Motor

121. Match the following [ ]

List I List II

1. Right hand thumb rule a. magnitude of magnetic field

2. Biot – Savart Law b. direction of induced current

3. Flemming’s left hand rule c. direction of magnetic field

4. Flemming’s right hand thumb d. direction of force due to magnetic field

A. 1) B. 1)

C. 1) D. 1)

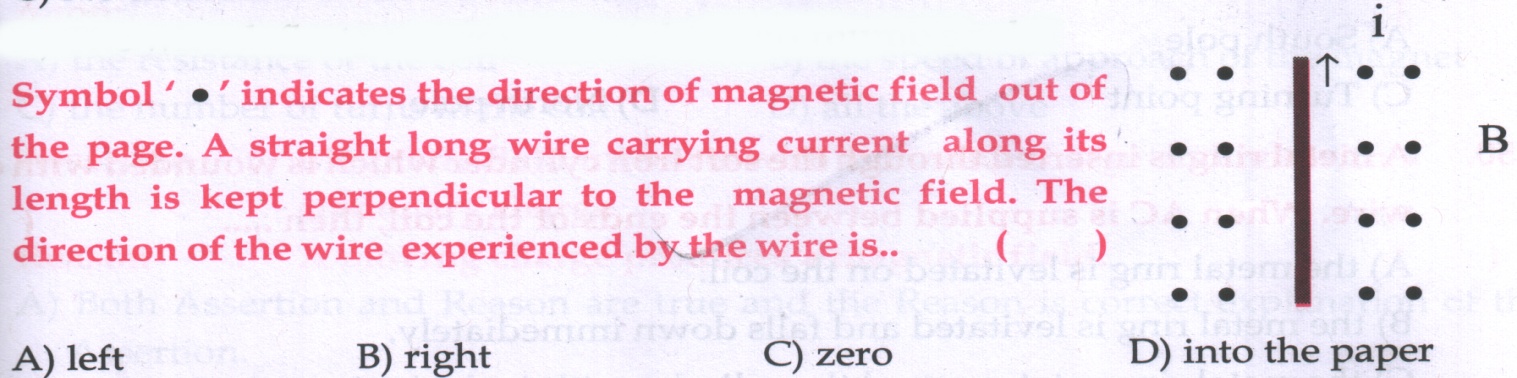
122. Magnetic flux density (B) = ………………….. [ ]

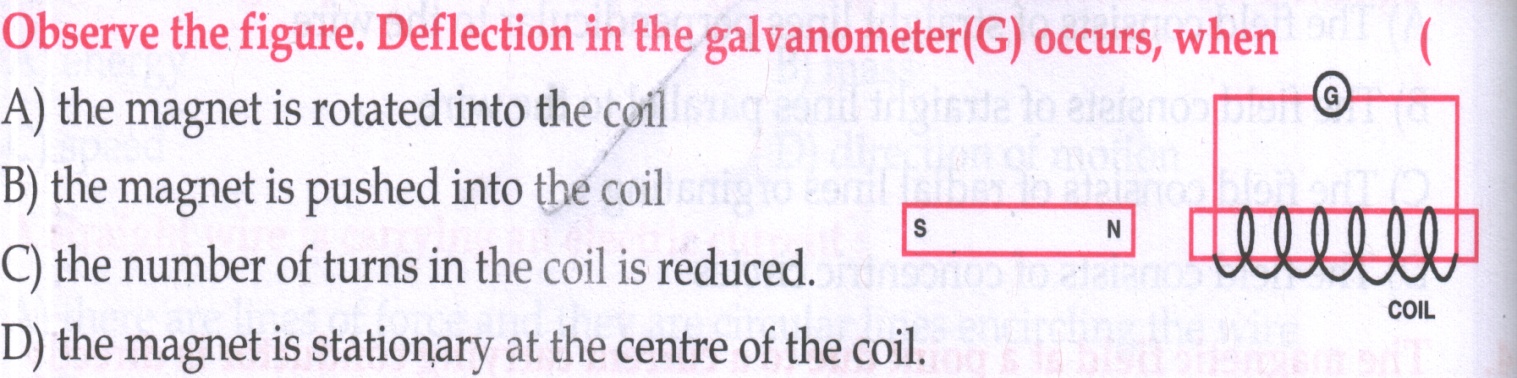
A. Area / Magnetci flux B. Length/ Magnetic flux C. Magnetic flux / Length D. Magnetic flux /Area

123. The magnetic field is called uniform if [ ]

A. strength and direction of magnetic field are changing B. Strength and direction of magnetic field are constant

C. only magnetic field strength is constant D. only direction of magnetic field is constant

124. 

125. 

126. Whenever there is continuous change of magnetic flux linked with closed coil a current is generated in coil a current

is generated in coil. This is ….. [ ]

A. Len’z law B. Ampere’s law C. Faraday’s law D. Ohm’s law

127. Which converts electrical energy into mechanical energy ? [ ]

A. Motor B. Battery C. Generator D. Switch

128. Which converts mechanical energy into electrical energy? [ ]

A. Motor B. Battery C. Generator D. Switch

129. Which of the following electrical devices works on the principle of electro – magnetic induction? [ ]

A. Electric fan B. Electric bulb C. Electric cooker D. L.E.D

130. The magnitude of induced emf in the coil of generator is maximum when coil turns through an angle of ….[ ]

A. 180 B. 90 C. 270 D. both B & C

131. The peak value of alternative current is 2 ampere. The r.m.s. value of current is …. [ ]

A. B. 2 C. D.

132. A conductor of length of 1 m moving with velocity ‘v’ perpendicular to the magnetic field of strength 10 tesla

induces an e.m.f. of 10 volts. Then V= ………………..m/s [ ]

A. 100 B. 10 C. 1 D. 0.1

133. Which of the following equations is correct in electro magnetism? [ ]

A. F= B. F= C. F = qvB sin D. F = qvB

**11. Principle of Metallurgy**

80. The fulx used in the extraction of iron [ ]

A. Silica B. Flint C. Feldspar D. Limestone

81. Carnalite is the ore of ….. [ ]

A. Pb B. Mg C. Hg D. Zn

82. The chemical process in which the ore is heated in the absence of air is called ….. [ ]

A. calcinations B. roasting C. smelting D. poling

83. One of the following metal is obtaining by the (self) auto reduction of its sulphide ore…. [ ]

A. Zn B. Mg C. Cu D.

84. The ore of calcium metal among the following is …… [ ]

A. Bauxite B. Lime stone C. Rock salt D. Haematite

85. Thermite reaction involves reaction of metal oxide with …….. [ ]

A. Ag B. Fe C. D. Hg

89. Match the following [ ]

i. Zinc blende a. Zno

ii. Magnesite b. ZnS

iii. Zincite c.

iv. Carnalite d. Mg

A. I - b, ii - d,iii – c, iv – a B. i -a, ii – b, iii – c, iv – d C. i – b, ii – d, iii – a, iv – c D. i – c, ii – a, iii – d, iv - b

134. Which is not feasible ? [ ]

A.+ B.

C. D.

**12. Carbon and its compounds**

90. Which of the following solution of acetic acid in water can be used as preservative? [ ]

A. 5-10% B. 10-15% C. 15-20% D. 100%

91. IUPAC name of [ ]

A. Chlorobutane B. 2-Chlorobutane C. 2,3 – Chlorobutane D. 2,3 - dichlorobutane

92. How many upaired electrons the carbon atom possess in the ground state? [ ]

A. 2 B. 3 C. 4 D. 1

93. The bond angle in molecule is [ ]

A.  B. 120 C. 180 D. 107

94. Which of the following organic compounds undergoes substitution reaction? [ ]

A. Alkanes B. Alkenes C. Alkynes D. All

95. Which one of the following a unsaturated hydrocarbon? [ ]

A. B. C. D.

96. Soaps do not create water pollutions because…….. [ ]

A. Soaps are insoluble in water B. Soaps are soluble in water

C. Soaps are 100% bio – degradable D. Soaps are non - biodegradable

97. Match the following [ ]

a. Amines i. R-O-R

b. Aldehydes ii. R-

c. Ethers iii. R-COOH

d. Acides iv. R-CHO

A. aii, biii, c I, d iv B. a i, b ii, c iii, c iv

C. a iii, b ii, c i, d iv D. a ii, b iv, c i , d iii

98. Which one of the following does not belong to the same homologous series [ ]

A. B. C. D.

99. The structure of 3- amino 2 – bromo 1 – hexanal is ….. [ ]

A. B.

C. D. -

Br OH

100. Esters are derivatives of [ ]

A. ketones B.alcohols C. ethers D. carboxylic acids