ENTRANCE TEST
2009-2010
SET-A

TIME : Two Hrs **MAX MARKS : 100**

PHYSICS

1. Image formed by a convex mirror of a real object is
   (a) Real and enlarged (b) Virtual and enlarged
   (c) Real and smaller (d) Virtual and smaller

2. Which of the following unit is the same as joule/coulomb?
   (a) Ohm (b) Volt
   (c) Ampere (d) Newton

3. A substance has atomic mass 64 and its valency is 2, then its chemical equivalent will be
   (a) 32 (b) 64
   (c) 128 (d) 16

4. For making permanent magnet, core of which material will you prefer.
   (a) Soft Iron (b) Hard steel
   (c) Copper (d) All of these

5. Range at wavelength for visible region is
   (a) 200 nm to 400 nm (b) 1200 nm to 1700 nm
   (c) 400 nm to 700 nm (d) none

6. If focal length of convex lens is 100 cm, what is the power of the lens?
   (a) 0.01 Dioptre (b) 0.1 Dioptre
   (c) 1 Dioptre (d) 10 Dioptre

7. Which of following is not example of total internal reflection?
   (a) Twinkling of star (b) Mirage
   (c) Totally reflected prism (d) optical fiber

8. A lens which is thicker at the middle and thinner at the ends is knows as
   (a) Convex lens (b) Concave Lens
   (c) Plano-concave Lens (d) None

9. Far point of normal human eye is:
   (a) 100 cm (b) in finite
   (c) 25 cm (d) 200 cm

10. If a lamp draws a current of 5A for 10 seconds, then the amount of charge is
    (a) 0.5 c (b) 5 c
    (c) 2 c (d) 50 c

11. The direction of magnetic field produce by a current carrying straight conductor can be found using
    (a) Right hand thump rule (b) Right hand Fleming rule
    (c) Left hand Fleming rule (d) Right hand rule

12. In our homes, electric appliances are connected in
    (a) Series (b) Parallel
    (c) Partly in parallel (d) none

13. Two elements of $_{20}Ca^{40}$ and $_{18}Ar^{40}$ are examples of
    (a) Isotones (b) Isotopes
    (c) Iso-neutrons (d) Isobars

14. Magnetic field around a current carrying straight wire depends upon.
    (a) Current only (b) Distance from the wire
    (c) (a) and (b) both (d) None

15. The energy, which is directly or indirectly not related to solar energy.
    (a) Wind energy (b) Energy of flowing water
    (c) Geothermal energy (d) None

16. Refractive index of a medium depends upon
    (a) Nature of material of medium (b) Density of medium
    (c) Wave length of light (d) All factor (a), (b) and (c)

17. Myopic eye can be corrected by
    (a) Convex Lens (b) Cylindrical Lens
    (c) Concave Lens (d) bifocal lenses

18. The unit of Resistance
    (a) Ohm (b) Volt
    (c) Ampere (d) Coulomb

19. SI Unit of acceleration due to gravity.
    (a) m/sec^2 (b) m/sec
    (c) m/sec^3 (d) m^2/sec

20. A body of mass 2 kg is moving with the speed of 20 m/sec its kinetic energy will be
    (a) 200 J (b) 400 J
    (c) 600 J (d) 100 J

21. Inertia is the property by virtue of which the body is unable to change by it self
    (a) The state of rest only (b) State of uniform motion only
    (c) The direction of motion only (d) All of these

22. The unit of momentum
    (a) kg m/sec (b) N.m./sec
    (c) Kg^2m/sec (d) $N/m^2/sec$

23. The instrument, which is used for measuring the magnitude of current following through a circuit is called
    (a) Voltmeter (b) Galvanometer
    (c) Ammeter (d) None of these

24. Ozone layer of the atmosphere absorbs
(a) Visible light (b) Infra-red radiation
(c) Ultra violet radiation (d) None of these

25. Milky way galaxy is the example of
(a) Elliptical galaxy (b) Spiral galaxy
(c) Irregular galaxy (d) None of these

26. The reaction taking place in the core of the sun is
(a) Nuclear fission (b) Chemical reaction
(c) Nuclear fusion (d) None of these

27. In the given figure, ammeter A reads 5A and volt meter V reads 40V, then actual value of R is
(a) 8 ohm (b) greater than of 8 ohm
(c) Less than 8 ohm (d) 200 ohm

28. Ohm's Law is valid when
(a) Temperature increases (b) Temperature decreases
(c) Graph between V and I is a curve (d) Temperature remains constant

29. Which one of the following is non-renewable source of energy?
(a) Fossil fuels (b) Solar energy
(c) Wind energy (d) None of these

30. Relation between critical angle (i_c) and refracting index of the medium (n) is given by
(a) $n = \sin i_c$ (b) $n = \cos i_c$
(c)) $n = \sin^2 i_c$ (d) $n = 1/\sin i_c$

SET_A

CHEMISTERY

1. Which of the following is not a chemical reaction.?
   (a) Souring of milk (b) Rusting of Iron
   (c) Dissolution of sugar in water (d) Digestion of food in our body

2. Which of the following is not a thermal de composition reaction.?
   (a) $2H_20 \longrightarrow 2H_2 + O_2$ (b) $2FeSO_4 \longrightarrow Fe_2O_3+SO_2+SO_3$
   (c) $ZNCO_3 \longrightarrow ZnO + CO_2$ (d) $2KclO_3 \longrightarrow 2KCl + 3O_2$

3. The correct formula of rust is?
   (a) Fe_2O_3 (b) Fe_3O_4
   (c) $Fe_2O_3\ xH_2O$ (d) $Fe_2O_4\ xH_2O$

4. Galvanisation of Iron means coating iron with
   (a) Chromium (b) Nikle
   (c) Zinc (d) Tin

5. Which of the following metal is protected by a layer of its oxide?
   (a) Copper (b) Silver
   (c) Iron (d) Aluminum

6. Which one of the following is acidic?
   (a) Lemon Juice (b) Tomatoes
   (c) Milk (d) All

7. Phenolphthalein is
   (a) Yellow in acidic medium, Pink in basic medium
   (b) Pink in acidic medium, colourless in basic medium
   (c) Colourless in acidic medium, pink in basic medium
   (d) Pink in acidic medium, Yellow in basic medium

8. Solution A, B, C and D have PH 3,4,6 and 8. The solution with highest acidic strength is?
   (a) A (b) B
   (c) C (d) D

9. The soil for healthy growth of plants should be
   (a) Highly acidic (b) Highly alkaline
   (c) Neither alkaline nor highly acidic (d) Neither acidic nor highly alkaline

10. Which of following is used in fire extinguisher?
    (a) Sodium carbonate (b) Calcium carbonate
    (c) Sodium hydrogen carbonate (d) None of these

11. Chemical formula for bleaching powder is
    (a) $CaOCl_2$ (b) $CaCl_2$
    (c) $Ca(OH)_2$ (d) $CaCl_2Ca(OCl)_2$

12. The Milkiness produced on passing CO_2 gas through lime water is due to formation of
    (a) Calcium carbonate (b) Calcium bicarbonate
    (c) Calcium carbide (d) Calcium oxide

13. The best conductor of electricity is ?
    (a) Copper (b) Aluminum
    (c) Silver (d) All are equal

14. The order of reactivity with oxygen is in order.?
    (a) Zn >Al> Mg > Fe (b) Mg >Al> Zn >Fe
    (c) Al >Zn> Mg > Fe (d) Fe >Mg> Al >Zn

15. Which of the following is an ore of iron?
    (a) Hematite (b) Galina
    (c) Bauxite (d) Cinnabar

16. The number of carbon atoms in 1 gram of $CaCo_3$ is
    (a) $6.023x10^{23}$ (b) $6.023x10^{21}$
    (c) $3.0125x10^{22}$ (d) $1.204x10^{23}$

17. Which of the following metals is protected from oxygen and moisture by immersing in kerosene?
    (a) Potassium (b) Magnesium
    (c) Aluminum (d) Silver

18. Pure gold is
    (a) 14 Carat (b) 24 Carat
    (c) 18 Carat (d) 22 Carat

19. The process of calcinations is used for
    (a) Carbonate Ores (b) Sulphide Ores
    (c) Nitrate Ores (d) Sulphate Ores

20. A covalent bond is formed
    (a) Complete transfer of electrons (b) One sided sharing of electrons
    (c) Mutual sharing of electrons (d) Any of the three above

21. Which of the following compounds can have a triple bond?
    (a) C_2H_6 (b) C_3H_4
    (c) C_3H_8 (d) C_3H_6

22. The general formula for alcohols is
    (a) CnH_2n_{+2} (b) CnH_2n_{+1} OH
    (c) CnH_2n (d) Cn H_2n_{+1} COOH

23. Which metal is found in liquid state?
    (a) Mercury (b) Sodium
    (c) Lead (d) Iron

24. Which of the following hydrocarbons shows isomerism?
    (a) C_2H_6 (b) C_2H_4
    (c) C_3H_8 (d) C_4H_{10}

25. Wine contains?
(a) CH_3OH (b) C_6H_5OH
(c) C_2H_5OH (d) CH_3COOH

26. Which of the following combination of elements belongs to the same group
(a) Cu Ag, Au (b) Li, Be, Al
(c) Na, Mg, Al (d) O, S, Cl

27. Which of following elements has smallest size?
(a) Al (b) F
(c) Cl (d) K

28. The atomic number of which of the following elements represent a metal.
(a) 17 (b) 2
(c) 37 (d) 33

29. The molecular Formula of acetic acid is:
(a) CH_3COOH (b) HCOOH
(c) CH_3CH_2COOH (d) $CH_3CH_2CH_2COOH$

30. Which of the following gases is highly soluble in water?
(a) SO_2 (b) O_2
(c) H_2 (d) CO_2

SET A

MATHEMATICS, COMPUTER & ENGLISH

1. The smallest natural number is
   (a) 0 (b) 1 (c) 2 (d) 3

2. Which of the following is not a proper fraction
   (a) 2/3 (b) 3/4 (c) 5/7 (d) 6/5

3. $1.\overline{3}$ is equal to
   (a) 3/4 (b) 2/3 (c) 4/3 (d) 2/5

4. $(a+b)(a^2-ab+b^2)$ is equal to
   (a) a^3+b^3 (b) a^3-b^3 (c) $(a+b)^3$ (d) $(a-b)^3$

5. The equation whose roots are 4 and 5 is
   (a) $x^2 - 9x + 20 = 0$ (b) $x^2 - 9x - 20 = 0$
   (c) $x^2 + 9x + 20 = 0$ (d) $x^2 + 9x - 20 = 0$

6. If $a^x = b$, $b^y = c$ and $c^z = a$, then the value of xyz is
   (a) 0 (b) 1 (c) 1/abc (d) abc

7. Twelve years hence a man will be four times as he was 12 years ago, then his present age is
   (a) 20 years (b) 25 years (c) 28 years (d) 30 years

8. The simplified value of $\left\{ x - \dfrac{1}{1 - x/(1+x)} \right\}$ will be
   (a) 0 (b) 1 (c) 1+x (d) -1

9. The sum of a number and its reciprocal is 125/22, then the number is
   (a) 1/11 (b) 2/11 (c) 3/11 (d) None of these

10. If $56^2-51^2 = 5p$ then the value of p will be
    (a) 106 (b) 107 (c) 105 (d) 104

11. The largest number which is a factor of 66 and 110 both will be
    (a) 2 (b) 11 (c) 22 (d) 33

12. If the list price of a book is reduced by Rs. 5 then a person can buy 5 more books for Rs. 300. Then the original cost of the book is
    (a) Rs. 15 (b) Rs. 20 (c) Rs. 25 (d) Rs.30

13. Jayant gets 3 marks for each right sum and losses 2 marks for each wrong sum. He attempts 30 sums and obtains 40 marks. The number of correct sums will be
    (a) 25 (b) 26 (c) 30 (d) 20

14. If A:B = 3:4 and B:C = 5:6 then A:C is
    (a) 5:9 (b) 3:4 (c) 1:2 (d) 5:8

15. If A gets 10 % more than B. The B gets
(a) 10% more than A (b) 10% less than A
(c) 9 1/11 % less than A (d) 9 1/11 % more than A

16. If the cost price of 8 articles is same as selling price of 10 articles. The loss % is
(a) 12% (b) 15% (c) 20% (d) 25%

17. If three numbers are in ratio 3:2:5 and sum of their squares is 1,862 then the middle number will be
(a) 14 (b) 13 (c) 12 (d) 11

18 10% of 15% of 20% of 500 Rs. Is equal to
(a) Rs. 0.50 (b) Rs. 1.50 (c) Rs.2.50 (d) Rs.3.50

19. Rs. 300 amounts to Rs. 360 in 4 years at simple interest. If the rate of interest increases by 1% it would amount to
(a) Rs. 364 (b) Rs. 368 (c)Rs. 372 (d) Rs. 384

20. The sum of exterior angles of a hexagon is
(a) Rs. 360^0 (b) 540^0 (c) 720^0 (d) 120^0

21. If two medians of a triangle are equal then the triangle is
(a) Right angled (b) isosceles (c) equilateral (d) scalene

22. If the length of chord of a circle is equal to the radius, then angle subtended by it at centre is
(a) 45^0 (b) 50^0 (c) 55^0 (d) 60^0

23. The volume of a sphere of diameter 2p cm will be
(a) $\pi\ p^2\ cm^3$ (b) $\pi\ p^3\ cm^3$ (c) $4/3\pi\ p^3\ cm^3$ (d) $4\pi\ p^3 cm^3$

24. The number of vertices in a cube is
(a) 6 (b) 8 (c) 10 (d) 12

25. The number of bricks of dimensions 25 cm x 12.50 cm x7.5cm required to build a wall of 5m x 3m x 0.2m are
(a) 1280 (b) 1285 (c) 1290 (d) 1295

26. The mean of 5 numbers is 18. If one number is excluded, their mean is 16. The Excluded number is
(a) 24 (b) 25 (c) 26 (d) 27

27. The top of a broken tree is at 30 m distant from root of tree and makes as angle of 30^0 with ground then the original height of the tree would be

(a) 30 √3 m (b) 30/ √3 m (c) 15 m (d) 30 m

28. $\sqrt{\frac{(1+\sin\varphi)}{(1-\sin\varphi)}}$ will be equal to

(a) $\sec\varphi-\tan\varphi$ (b) $\sec\varphi + \tan\varphi$ (c) $\sin\varphi + \cos\varphi$ (d)$\sin\varphi-\cos\varphi$

29. The value of x and y for simultaneous equations $2x + y = 1$; $x – y = 2$ is
(a) x =1, y = -1 (b) x = -1, y = 1 (c) x = 1, y =1 (d) x = -1, y = -1

30. If probability of raining tomorrow is 0.4 then probability of not raining tomorrow will be
(a) 1 (b) 0 (c) 0.6 (d) 0.4

31. The Mouse in computer is an
(a) Input device (b) output device (c) Memory device
(d) Not related to computer

32. DMP is a type of
(a) Memory (b) input Device (c) Printer (d) Virus

33. The value of binary number $(1011)_B$ in decimal will be
(a) 1011 (b) 10 (c) 11 (d) 12

34. C^{++} is a
(a) High level language (b) Low level language
(c) Machine Language (d) None of these

35. Who is known as the Father of Computer?
(a) Pascal (b) Lady Ada (c) Newton (d) Charl's Babbage

36. You have to complete this work within ___ Hour.
(a) a (b) an (c) the (d) None

37. Please place this pot _____ the table.
(a) of (b) in (c) on (d) upon

38. Sita is taller _____Gita.

(a) to (b) then (c) of (d) than

39. This is the boy _____ has been selected.
(a) whom (b) who (c) which (d) that

40. The cow is standing _____ the tree.
(a) on (b) into (c) under (d) in