



SRIGAYATRI EDUCATIONAL INSTITUTIONS

ANDHRA PRADESH

CLASS – X

Time: 1 Hr.

NTSE

Date: _____

Max. Marks: 60

MATHEMATICS

- If $f(x) = a_0x^n + a_1x^{n-1} + a_2x^{n-2} + \dots + a_n$ and $a_0 + a_1 + a_2 + \dots + a_n = 0$ then the factor of $f(x)$ is
 (A) $x+1$ (B) $x-1$ (C) $(x+1)(x-1)$ (D) None of these
- In the expansion of $\left(x + \frac{1}{x}\right)^9$ which term contains x^5 ?
 (A) 3 (B) 4 (C) 5 (D) 6
- If $(x-1)$ is a factor of $x^4 - 5x^3 + ax^2 + 5x - k$ then $a - k =$
 (A) -1 (B) 1 (C) 0 (D) None of these
- The roots of a quadratic equation $Px^2 + qx + r = 0$ are equal then $q^2 =$ _____
 (A) $P+r$ (B) $P-r$ (C) $4Pr$ (D) Pr
- ${}^6C_4 =$ _____
 (A) 30 (B) 24 (C) 6 (D) 15
- The last term in the expansion of $\left(x + \frac{2}{x}\right)^5$
 (A) $\frac{2}{x^5}$ (B) $\frac{10}{x^5}$ (C) $\frac{32}{x^5}$ (D) $\frac{2}{x}$
- If the discriminant of a quadratic equation is negative then the roots are _____
 (A) Imaginary (B) Real number (C) both (A) and (B) (D) None of these
- $Y = -mx^2$ is symmetric about
 (A) x-axis (B) y-axis (C) (A) & (B) (D) None of these
- All the points on $y = mx^2$ lie in _____ quadrants
 (A) I & II (B) II & III (C) III & IV (D) II & IV
- The remainder when $f(x)$ is divided by $(ax-b)$ is _____
 (A) $f(-a/b)$ (B) $f(b/a)$ (C) $f\left(\frac{a}{b}\right)$ (D) $f\left(\frac{-b}{a}\right)$
- If $x^2 - 5x + 4 < 0$ then x lies between _____
 (A) 1 and 2 (B) 1 and 3 (C) 1 and 4 (D) 2 and 4
- In the expansion of $\left(2x + \frac{1}{3x}\right)^4 \frac{8}{3}$ is the co-efficient of _____
 (A) x^3 (B) x^2 (C) x (D) x^0
- The expression $ax^2 + bxy + ay^2 + b$ is an example of
 (A) Homogeneous (B) Symmetric
 (C) Homogeneous symmetric (D) None of these
- If the roots of an equation $Px^2 + qx + r = 0$ are equal, then
 (A) $q^2 = Pr$ (B) $q^2 = 4Pr$ (C) $P^2 = 4Pr$ (D) $P = q = r$
- If $(x+1)$ is a factor of $ax^2 + bx + c$ then $b =$
 (A) a (B) c (C) $a - c$ (D) $a + c$

16. $x^{1/3} + bx + cx^2 + d$ is a/an
 (A) Algebraic expression (B) polynomial
 (C) Equation in one variable (D) None of these
17. If $x = \frac{1}{3}$ then $x + \frac{1}{1 + \frac{1}{1+x}}$ is
 (A) $\frac{21}{19}$ (B) $\frac{16}{21}$ (C) $\frac{17}{21}$ (D) $\frac{19}{21}$
18. The remainder obtained when $x^{51} + 51$ is divided by $(x+1)$ is
 (A) 0 (B) 49 (C) 1 (D) 50
19. The remainder when $1 + x + x^2 + x^3 + \dots + x^{2006}$ when it divided by $x-1$ is
 (A) 2005 (B) 2006 (C) 2007 (D) 2008
20. If $x^4 + mx^3 + 2x^2 + 4$ is exactly divisible by $x^2 - x - 2$ then $(l, m) =$
 (A) $\left(\frac{-5}{2}, \frac{-7}{2}\right)$ (B) $\left(\frac{5}{2}, \frac{-7}{2}\right)$ (C) $\left(\frac{-5}{2}, \frac{-7}{2}\right)$ (D) $\left(\frac{-5}{2}, \frac{7}{2}\right)$

PHYSICS

21. Unit of magnetic induction B is
 (A) N/A-m (B) N-A/m (C) -m/A (D) N/A
22. An electric charge in uniform motion produces
 (A) an electric field only (B) a magnetic field only
 (C) both electric and magnetic fields (D) no such field at all
23. The force acting on a charge q moving with a velocity v in a magnetic field of induction B is given by
 (A) $q/(\bar{v} \times \bar{B})$ (B) $(\bar{v} \times \bar{B})/q$ (C) $q(\bar{v} \times \bar{B})$ (D) $(\bar{v} \times \bar{B})q$
24. A charge q is moving with a velocity parallel to a magnetic field. Force on the charge due to magnetic field is
 (A) qvB (B) qB/v (C) 0 (D) Bv/q
25. A charged particle moving in a magnetic field experience a resultant force
 (A) in the direction of field (B) in the direction opposite to that of field
 (C) in the direction perpendicular to both the field and its velocity
 (D) none of the above
26. Two free parallel wires carrying currents in the opposite directions
 (A) attract each other (B) repel each other
 (C) do not affect each other (D) get rotated to be \perp to each other
27. Particles having positive charges occasionally come with high velocity from the sky towards the earth. On account of magnetic field of earth, they would be deflected towards
 (A) north (B) south (C) east (D) west
28. Two long parallel wires are at a distance of 1 meter. Both of them carry one amperes of current. The force of attraction per unit length between the two wires is
 (A) $2 \times 10^{-7} N/m$ (B) $2 \times 10^{-8} N/m$ (C) $5 \times 10^{-8} N/m$ (D) $10^{-7} N/m$
29. A uniform magnetic field acts at right angles to the direction of motion of electrons. As a results the electron moves in a circular path of radius 2 cm. If the speed of the electrons is doubled, the radius of the circular path will be
 (A) 2.0 cm (B) 0.5 cm (C) 4.0 cm (D) 1.0 cm
30. An electron having a charge 'e' moves with a velocity 'v' in x-direction. An electric field acts on it in positive y-direction. The force on the electron acts in
 (A) positive direction of y-axis (B) negative direction of y-axis
 (C) positive direction of z-axis (D) negative direction of z-axis

31. **Lenz's law is a consequence of the law of conservation of**
 (A) charge (B) mass (C) momentum (D) energy
32. **An induced e.m.f. is produced when a magnet is plunged into a coil. The strength of the induced e.m.f. is independent of**
 (A) the strength of the magnet (B) number of turns of coil
 (C) the resistivity of the wire of the coil (D) speed with which the magnet is moved
33. **Whenever the magnetic flux linked with a coil changes, there is produced an induced e.m.f. in the circuit. The e.m.f. lasts**
 (A) for a short time (B) for a long time
 (C) for ever (D) so long as the change in flux takes place
34. **A magnet is moved towards a coil (i) quickly (ii) slowly; then the induced e.m.f. is**
 (A) larger in case (i) (B) smaller in case (i)
 (C) equal in both cases
 (D) larger or smaller depending upon the radius of the coil

CHEMISTRY

35. **Oils are tri esters of**
 (A) fatty alcohols and fatty acids (B) acids and amides
 (C) fatty acids and ethyl alcohol (D) glycerd and fatty acids
36. **Deodorant soap contains**
 (A) stearic acid (B) 3,4,5 tribromosalicylanilide
 (C) builder (D) glycerol
37. **Odd one out is**
 (A) lauric acid (B) stearic acid (C) oleic acid (D) both A and B
38. **Salts of alkyl benzene sulphonates are**
 (A) soaps (B) detergents (C) alcohols (D) acids
39. **The cation of soap useful for removal of grease is**
 (A) K^+ (B) Na^+ (C) Li^+ (D) Mg^{2+}
40. **The catalyst used in hydrogenation of oils is**
 (A) Pt (B) Ni (C) Fe (D) Cu
41. **Main sources of oils & fats are**
 (A) plants and animals (B) chemicals
 (C) adhesives (D) plastics
42. **Stearic acid formula is**
 (A) $C_{17}H_{33}COOH$ (B) $C_{17}H_{35}COOH$ (C) $C_{17}H_{29}COOH$ (D) $C_{17}H_{31}COOH$
43. **Detergents are useful even in hard water because**
 (A) they do not react with hard water ions
 (B) they react with hard water ions but do not form precipitate
 (C) they destroy hard water ions
 (D) they sediment hard water ions
44. **Soaps are**
 (A) acidic (B) basic
 (C) salts of fatty acids (D) both B and C
45. **Hydrogenation of oils**
 (A) produces fats (B) improves taste and odour
 (C) improves preservation (D) all the above
46. **In olden days _____ was used for lighting**
 (A) coconut oil (B) fish liver oil (C) castor oil (D) sunflower oil
47. **The process not involved in soap manufacture**
 (A) hydrolysis (B) fractional distillation
 (C) neutralization (D) redox reaction

BIOLOGY

48. **Vanaspathi is prepared by converting the**
 (A) Essential amino acids to non-essential amino acids
 (B) non-essential amino acids to essential amino acids
 (C) unsaturated fatty acids to saturated fatty acids
 (D) saturated fatty acids to unsaturated fatty acids
49. _____ **ions maintain the osmotic balance inside the cell and are also required for neuronal activity**
 (A) Potassium (B) Sodium (C) Calcium (D) Chloride
50. **Which one of these chemical substance function like roughages in human body ?**
 (A) Starch (B) Cellulose (C) Glycogen (D) Maltose
51. **It is an African word – it means “displaced child”.**
 (A) Marasmus (B) Obesity (C) Kwashiorkor (D) Polio
52. **The fracture in which bone bends but does not break, and is usually see in children identify it.**
 (A) Complicated fracture (B) Simple fracture
 (C) Compound fracture (D) Green stick fracture
53. **Traditional birth attendants of the locality are called**
 (A) Village health guides (B) Anganwadi worker
 (C) Nurse (D) Local Dayees
54. **The element required for the formation of bones, teeth, coagulation of blood. And production of milk in the lactation females and for muscle contraction.**
 (A) Iodine (B) Fluorine (C) Calcium (D) Iron
55. **This occurs when there is an immediate second pregnancy of the mother is extremely weak due to repeated childbirths. This is also seen during famines and wartime. In which of the following deficiency the above said facts are seen.**
 (A) Kwashiorkor (B) Marasmus (C) Obesity (D) Jaundice
56. **Which of the following substance can be assimilated with out digestion ?**
 (A) Vitamin (B) Proteins (C) Starch (D) Lipids
57. **‘A’ eats carrots, ‘B’ drinks milk, who is taking more vitamin A and why ?**
 (A) ‘A’ taking more vitamin A because carrots have rich sources of vitamin A
 (B) ‘B’ taking more vitamin A because milk has fat, in which vitamin A is dissolved
 (C) Both of them equally benefited (D) None of them get vitamin A
58. **Which one of this statement is false ?**
 (A) Iodine is required for the production of Thyroid Hormone.
 (B) fluorine prevents the occurrence of dental caries
 (C) Calcium also plays a role in blood clotting, muscle contraction, conduction of nerve impulse, heart functioning and action of many enzymes and hormones.
 (D) None of the above
59. **HIV comprises this enzyme:**
 (A) Reverse transcriptase (B) lactose
 (C) Sucrose (D) All of these
60. **Number of ova released in female human beings during pregnancy is /are :**
 (A) 4 (B) 2 (C) 0 (D) 6
