



NATIONAL INFOTECH Sec. SCHOOL

+2 ENTRANCE EXAM-2076

SET - I

TIME: 2 . 15 Hrs.

FM : 100

PM : 40

Attempt all the questions

PHYSICS

1. The force of gravitation between two bodies does not depend upon
 - A. their separation
 - B. the product of their masses
 - C. the sum of their masses
 - D. the gravitational constant
2. The earth gravitational force causes an acceleration of 5m/s^2 in 1 kg of mass somewhere in space. How much will the acceleration of 3kg mass be at the same place?
 - A. 5m/s^2
 - B. 3m/s^2
 - C. 9.8m/s^2
 - D. none of them
3. The weight of the body at Centre of earth is
 - A. zero
 - B. infinite
 - C. same as at other places
 - D. slightly greater than at poles
4. The density of gold is 19gm/cm^3 . What is its density in SI unit.
 - A. 19000 kg/m^3
 - B. 19030 kg/m^3
 - C. 18900 kg/m^3
 - D. none of above
5. If an iron box having length 3m, breadth 1m and height 2m has mass of 3000 kg and immersed in water then
 - A. It floats on water
 - B. It sinks in water
 - C. Sinks after sometime
 - D. Cannot say anything
6. 1 atm pressure at sea level is
 - A. 1.06×10^5 Pascal
 - B. Both a and b
 - C. 760 mm of Hg
 - D. none of above
7. If the weight of body in water is 15N and weight of liquid displaced by the body is 5N. What is the weight of body in air?
 - A. 20N
 - B. 10N
 - C. 75N
 - D. 15N
8. Which of the following does not have unit?
 - A. density
 - B. relative density
 - C. upthrust
 - D. pressure
9. Which is the ultimate source of energy?
 - A. water
 - B. sun
 - C. uranium
 - D. fossil fuel
10. The main constituent of biogas is
 - A. methane
 - B. carbon dioxide
 - C. hydrogen
 - D. hydrogen sulphide
11. The major problem in harnessing nuclear energy is how to
 - A. Split nuclei
 - B. Sustain the reaction
 - C. convert nuclear energy into electrical energy
 - D. dispose of spent fuel safely
12. The value of absolute zero is
 - A. -273°C
 - B. 0°K
 - C. both a and b
 - D. none of above
13. 32°F corresponds to
 - A. 0°C
 - B. 32°C
 - C. 212°C
 - D. 100°C
14. SI unit of specific heat capacity is
 - A. $\text{Jkg}^{-1}\text{C}^{-1}$
 - B. Jkg^{-1}C
 - C. $\text{Jkg}^{-1}\text{K}^{-1}$
 - D. JkgC^{-1}

- 15.** Magnification produced by a rear-view mirror fitted in vehicles
- <1
 - >1
 - can be more or less than 1 depending upon position of object
 - =1
- 16.** In which of the following the image of an object placed at infinity will be highly diminished and point sized?
- Concave mirror
 - Convex lens
 - Concave lens
 - all of above
- 17.** A concave lens of focal length 15cm forms an image 10cm from lens. How far is the object placed from the lens?
- 30cm
 - 30cm
 - 15cm
 - 15cm
- 18.** Which of the following represents voltage?
- $\frac{\text{Work done}}{\text{current} \times \text{time}}$
 - $\text{workdone} \times \text{charge}$
 - $\frac{\text{Work done} \times \text{time}}{\text{current}}$
 - $\text{workdone} \times \text{charge} \times \text{time}$
- 19.** Unit of electric power may also be expressed as
- Volt ampere
 - Kilowatt hour
 - watt second
 - joule second
- 20.** In case the conductor is a heating appliance, then this energy(w) is converted into heat(H) i.e
- $w=H$
 - $w=VI t$
 - $w=I^2 R t$
 - all of above

CHEMISTRY

- 21.** Which among the following is the most reactive halogen?
- F
 - Cl
 - Br
 - I
- 22.** The correct sequence of atomic radii is
- $\text{Na} > \text{Mg} > \text{Al} > \text{Si}$
 - $\text{Al} > \text{Si} > \text{Na} > \text{Mg}$
 - $\text{Si} > \text{Al} > \text{Mg} > \text{Na}$
 - $\text{Si} > \text{Al} > \text{Na} > \text{Mg}$
- 23.** Which of the following blocks of elements comprise transition element?
- s-block
 - p-block
 - d-block
 - f-block
- 24.** Which of the following is not a combination reaction?
- $\text{Ca}(\text{OH})_2 + \text{CO}_2 \rightarrow \text{CaCO}_3 + \text{H}_2\text{O}$
 - $\text{NH}_3 + \text{H}_2\text{O} \rightarrow \text{NH}_4\text{OH}$
 - $2\text{H}_2 + \text{O}_2 \rightarrow 2\text{H}_2\text{O}$
 - $2\text{NH}_3 + \text{H}_2\text{SO}_4 \rightarrow (\text{NH}_4)_2\text{SO}_4$
- 25.** Which of the following reaction will not take place?
- $\text{Zn} + \text{FeSO}_4 \rightarrow \text{ZnSO}_4 + \text{Fe}$
 - $2\text{Al} + 3\text{MgSO}_4 \rightarrow \text{Al}_2(\text{SO}_4)_3 + 3\text{Mg}$
 - $\text{Fe} + \text{NiSO}_4 \rightarrow \text{FeSO}_4 + \text{Ni}$
 - $\text{Cu} + 2\text{AgNO}_3 \rightarrow \text{Cu}(\text{NO}_3)_2 + 2\text{Ag}$
- 26.** Which of the following is not a physical change?
- Boiling of water to give water vapor
 - Melting of ice to give water
 - Dissolution of salt in water
 - Combustion of LPG
- 27.** Methyl orange is
- Red in acidic, medium yellow in base
 - Yellow in acid, red in base
 - Colorless in acid, red in base
 - Red in acid, colorless in base

- 28.** 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
- 29.** Lemon Juice and coffee are
 A. Both acidic
 B. Both basic
 C. Solution B is 1000 times more acidic than A
 D. Lemon juice is acidic, coffee is basic
- 30.** Manufacturing of ammonia needs
 A. 200-900 atm
 B. 500°C temperature
 C. finely divided iron pieces & molybdenum
 D. all of above
- 31.** Physical properties of CO₂ is
 A. Fairly soluble in water
 B. 1.5 times heavier than air
 C. Only a
 D. Both a and b
- 32.** Among the metal the poorest conductor of heat is
 A. lead
 B. tin
 C. bismuth
 D. mercury
- 33.** The best conductor of electricity is
 A. copper
 B. aluminum
 C. silver
 D. all of above
- 34.** The correct order of electrical conductivity is
 A. Al>Au>Cu>Ag
 B. Cu>Ag>Al>Au
 C. Au>Ag>Al>Cu
 D. Ag>Cu>Au>Al
- 35.** A molecule of ammonia (NH₃) has
 A. Only single bond
 B. Only double bond
 C. Only triple bond
 D. Two double bonds & one single bond
- 36.** Pentane has the molecular formula C₅H₁₂. It has
 A. 5 covalent bond
 B. 12 covalent bond
 C. 16 covalent bond
 D. 17 covalent bond
- 37.** The name of the compound CH₃-CH₂-CHO is
 A. Propanal
 B. Ethanol
 C. Propanone
 D. Ethanal
- 38.** Importance of phosphorus is to
 A. Helps in resist disease
 B. Helps in root formation and fast growth of roots
 C. Helps in content of starch in grains
 D. All of above
- 39.** Blue color of glass requires
 A. Cobalt oxide
 B. Nickel oxide
 C. Tin oxide
 D. Ferrous oxide
- 40.** The first member of alkyne homologous series is
 A. ethyne
 B. ethene
 C. propyne
 D. methane

BIOLOGY

- 41.** In the life cycle of silkworm, molting occurs for:
 A. 1 time
 B. 2 times
 C. 3 times
 D. 4 times

- 42.**Total number of Queen bee present in the bee hive of honeybee is/are:
 A. 1
 B. 2
 C. 3
 D. 4
- 43.**Sericulture deals with rearing of
 A. Earthworm
 B. Silkworm
 C. Honeybee
 D. Tapeworm
- 44.**In human being, oxygen is transported in maximum amount by:
 A. WBC
 B. Platelets
 C. Hemoglobin
 D. Plasma
- 45.**Crocodile is a reptile. So, the heart of crocodile is:
 A. 2 chambered
 B. 3 chambered
 C. 4 chambered
 D. 5 chambered
- 46.**Enzymes are secreted by
 A. Exocrine gland
 B. Endocrine gland
 C. RBC
 D. WBC
- 47.**Largest Endocrine gland is
 A. Thyroid
 B. Pancreas
 C. Pituitary
 D. Adrenal
- 48.**Movement of the body and balancing of the body is under the control of
 A. Cerebrum
 B. Cerebellum
 C. Pons Varolli
 D. Spinal cord
- 49.**Reflex action is under the control of
 A. Pituitary
 B. Thyroid
 C. Spinal cord
 D. Cerebellum
- 50.**Causative Organism of Malaria is
 A. Amoeba
 B. Paramecium
 C. Plasmodium
 D. Giardia
- 51.**Spirogyra falls under
 A. Algae
 B. Fungi
 C. Gymnosperm
 D. Angiosperm
- 52.**The character that is expressed in F_1 generation of Mendelism is:
 A. Dominant Character
 B. Recessive Character
 C. Co-dominant Character
 D. None
- 53.**First vascular cryptogams are:
 A. Algae
 B. Fungi
 C. Bryophytes
 D. Pteridophytes
- 54.**Ginger is a
 A. Root
 B. Leaf
 C. Stem
 D. None
- 55.**Who is known as "Father of Biology"?
 A. Aristotle
 B. Lamarck
 C. Charles Darwin
 D. Wallace
- 56.**Which of the following carries oxygenated blood?
 A. Superior Venacava
 B. Inferior Venacava
 C. Pulmonary Veins
 D. None

57. Bicuspid valve (Mitral Valve) is present between

- A. Right atrium and Right ventricle
- B. Left atrium and left ventricle
- C. Right ventricle and Pulmonary artery
- D. Left Ventricle and Aorta

58. Which of the following cell division is also known as Reductional cell division?

- A. Mitosis
- B. Meiosis
- C. Amitosis
- D. None

59. Which of the following is known as “Power house of the cell”?

- A. Cell Membrane
- B. Chloroplast
- C. Mitochondria
- D. None

60. The transfer of pollen grains from anther to stigma is known as?

- A. Pollination
- B. Fertilization
- C. Triple fusion
- D. None

ENGLISH

Questions given below are incomplete sentences. Beneath each sentence you will see four words or phrases marked A, B, C and D. Choose the word or phrase that best completes the sentence.

Read the following passage and circle the correct answer to the question's given below:

Marie Curie was one of the most accomplished scientists in history. Together with her husband Pierre, she discovered radium, an element widely used for treating cancer, and studied uranium and other radioactive substance. Pierre and Marie's amicable collaboration later helped to unlock the secrets of the atom.

Marie was born in 1867 Warsaw, Poland where her father was a professor of physics. At the early age, she displayed a brilliant mind and a blithe personality. Her great exuberance for learning prompted her to continue with her studies after high school. She became disgruntled, however, when she learned that the university in Warsaw was closed to woman, determined to receive higher education, she defiantly left Poland and in 1891 entered the Sorbonne, a French university, where she earned her master's degree and doctorate in physics.

Marie's was fortunate to have studied at the Sorbonne with some of the greatest scientist of her whom was Pierre Curie. Marie and Pierre were married in 1895 and spent many productive years working together in the physics laboratory. A short time after they discovered radium, Pierre was killed by a horse-drawn wagon in 1906.

Marie was stunned by this horrible misfortune and endured heart-breaking anguish. Despondently she recalled their close relationship and the joy that they had shared in scientific research. The fact that she had two young daughters to rise by herself greatly increased her distress.

Curie's felling of desolation finally began to fade when she was asked to succeed her husband as a physics professor at the Sorbonne. She was first woman to be given a professorship at the would-famous university. In 1911 she received the Nobel Prize in chemistry for Isolating radium. Although Marie Curie eventually suffered a fatal illness form her long exposure to radium, she never became disillusioned about her work. Regardless of the consequences, she had dedicated herself to science and to revealing the mysteries of the physics world.

- 61.**The Curies collaboration helped to unlock the secrets of the atom.
- A. friendly
B. competitive
C. courteous
D. industrious
- 62.**Marie had a bright mind and a personality.
- A. Strong
B. Behaved
C. Lighthearted
D. Worried
- 63.**When she learned that she could not attend the university in Warsaw, she felt
- A. Hopeless
B. Annoyed
C. Behaved
D. Worried
- 64.**Marie.....by leaving Poland and traveling to France to enter the Sorbonne.
- A. Challenged authority
B. Showed intelligence
C. Behaved
D. Was distressed
- 65.**..... she remembered their joy together.
- A. Dejectedly
B. Worried
C. Tearfully
D. Happily
- 66.** Her..... began to fade when she returned to the Sorbonne to succeed her husband.
- A. Misfortune
B. Anger
C. Wretchedness
D. Disappointment
- 67.**Even though she became fatally ill from working with radium, Madame Curie was never.....
- A. Troubled
B. Worried
C. Disappointed
D. Sorrowful
- 68.**The world in the passage disgruntled is closest in Meaning to.
- A. Displeased
B. Decoyed
C. Excited
D. Pleased
- 69.**The word horrible means.
- A. Huge
B. Terrible
C. Wonderful
D. Great
- 70.**The antonym of word dedicated.
- A. Committed
B. Uncommitted
C. Out and Out
D. Keen
- 71.**This is place I like very much.
- A. a
B. an
C. the
D. none
- 72.** Take the umbrella. It..... outside.
- A. is raining
B. rains
C. raining
D. will rains
- 73.**My teacher always goes to school..... bus.
- A. in
B. by
C. on
D. of
- 74.**The wages of sin..... death.
- A. is
B. was
C. are
D. were
- 75.**Subodh asked me the class.
- A. If I had started
B. That I have started
C. To have started
D. If I will have started

76. We bought nothing yesterday. Nothing..... yesterday.

- A. Was not bought
- B. Was bought
- C. Was not being bought
- D. bought

77. Honesty is Best policy.

- A. a
- B. an
- C. the
- D. none

78. A person who has a passion for stealing.

- A. Kleptomania
- B. Skeptic
- C. Convivialist
- D. Podiatrist

79. A..... of natives

- A. team
- B. tribe
- C. herd
- D. crew

80. Swan: Cygnet, then horse.....

- A. Lamp
- B. Leveret
- C. Mining
- D. Colt

MATH

81. If $n(A) = 100$, $n(B) = 150$, $n(\overline{A \cup B}) = 10$ and $n(A \cap B) = 50$. What is the value of $n(U)$?

- A. 210
- B. 200
- C. 190
- D. 180

82. Compound interest on Rs.1000 @ 20% p.a. semiannually for 22 months is

- A. Rs. 420.31
- B. Rs. 419.73
- C. Rs. 400.29
- D. Rs. 409.13

83. A person exchanged Rs1000(NPR) with American Dollar (\$) @ \$1=Rs100, what amount will he gain if he again exchanges his \$ with NPR after devaluation of NPR by 10%?

- A. Rs 100
- B. Rs 10
- C. Rs 90
- D. No gain

84. What is the T. surface of a square based pyramid with actual height 3cm and slant height 5cm?

- A. 15cm^2
- B. 30cm^2
- C. 96cm^2
- D. 80cm^2

85. HCF of x^5+x^4+1 and x^5+x+1 is

- A. x^2+x-1
- B. x^2+x+1
- C. x^2-x+1
- D. x^2-x-1

86. Solution of $\frac{12^x+18^x}{8^x+27^x} = \frac{6}{7}$ is

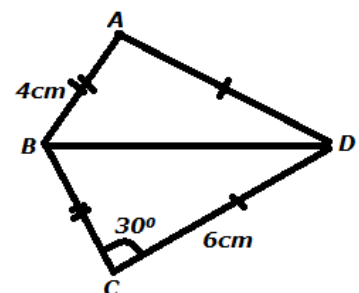
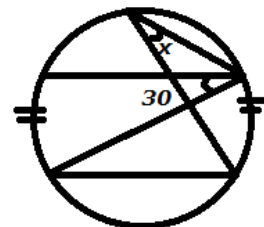
- A. 1
- B. -1
- C. 2
- D. ± 1

87. Find value of x

- A. 60°
- B. 90°
- C. 30°
- D. None

88. Area of kite ABCD is

- A. 12cm^2
- B. 6cm^2
- C. 24cm^2
- D. 18cm^2



89. What is the probability of getting exactly 2 heads when a coin is tossed 3 times?

- A. $\frac{2}{8}$
- B. $\frac{1}{8}$
- C. $\frac{3}{8}$
- D. $\frac{1}{2}$

90. Mean deviation of 10, 20, 30, 40, 50 about median is

- A. 10
- B. 12
- C. 9
- D. 8.5

91. If $\tan(A+B) = 2$ and $\tan(A-B) = 1$ then $\tan 2A = ?$

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

92. What is the value of $\cot 7\frac{1}{2}$?

- A. $\sqrt{6} + \sqrt{3} + \sqrt{2} + 2$
- B. $\sqrt{6} - \sqrt{3} - \sqrt{2} - 2$
- C. $\sqrt{6} + \sqrt{3} - \sqrt{2} + 2$
- D. None

93. Acute angle between line pair $6x^2 - xy - y^2 = 0$ is

- A. 30°
- B. 60°
- C. 45°
- D. 75°

94. Equation of tangent to a circle $x^2 + y^2 = 1$ at (1, 0) is

- A. $x = 1$
- B. $y = 1$
- C. $x = 0$
- D. $y = 0$

95. If $\angle ACB$ is an inscribed angle in semicircle then $\vec{AC} \cdot \vec{BC} = \dots$

- A. \vec{AB}
- B. 1
- C. 0
- D. AC^2

96. Sum of 1st 'n' natural numbers is

- A. $\frac{n(n+1)}{2}$
- B. $\frac{n(n-1)}{2}$
- C. $\frac{n(n^2-1)}{2}$
- D. $\frac{n(n^2+1)}{2}$

97. If $f(x) = \frac{3x-2}{5}$ what is the value of $f^{-1}(a)$

- A. $\frac{3a-2}{5}$
- B. $\frac{5a+2}{3}$
- C. $\frac{5a-2}{3}$
- D. $\frac{2-5a}{3}$

98. If f and g are two functions which of the following is not true in general

- A. $f^{-1} \circ f = g^{-1} \circ g$
- B. $f^{-1} \circ f = f \circ f^{-1}$
- C. $(f \circ g)^{-1} = g^{-1} \circ f^{-1}$
- D. $f \circ g = g \circ f$

99. If $A = \begin{pmatrix} x & x+2 \\ 1 & x \end{pmatrix}$ is a singular matrix then $x = \dots$

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

100. If A and B are inverse to each other then

- A. $AB = I$
- B. $BA = I$
- C. $AB = BA$
- D. All

GOOD LUCK