

JUNIOR SCIENCE TALENT SEARCH EXAMINATION (JSTSE)
04 – A / 2017- 18 (For Class – IX)
Held on January 28, 2018

GENERAL KNOWLEDGE
(QUESTION NO. 01– 50)

1. The Machia Biological park is located in which state?
1. Rajasthan
2. Sikkim
3. Nagaland
4. Manipur
2. Maheshwari Chauhan is associated with which sport?
1. Cricket
2. Shooting
3. Boxing
4. Chess
3. In early Brahmi Script letter 'a' is written as:
1. अ
2. ँ
3. आ
4. ए
4. Fresh water found in icecaps and glaciers on earth is about ___ percent
1. 58
2. 68
3. 48
4. 38
5. Which city is the India's cleanest city according to Swachh Bharat Survey 2017?
1. Tiruchirapally
2. Indore
3. Mysore
4. Vishakhapatnam
6. Which of the following bank started the country's first ATM based on aadhar card?
1. ICICI Bank
2. HDFC Bank
3. DCB Bank
4. YES Bank
7. The first state in India to shift financial year from January to December format is
1. Goa
2. Madhya Pradesh
3. Uttar Pradesh
4. Delhi
8. The union health ministry and family welfare has set malaria elimination deadline as
1. 2025
2. 2021
3. 2027
4. 2030
9. Who is the head of the 9 judge constitution bench of the supreme court to determine whether privacy is a fundamental right or not under the constitution?
1. Abhay Manohar Sapre
2. Sanjay Kishore Kaul
3. J S Khehar
4. F Nariman
10. As per NITI Aayog, India's economy is expected to grow at ___ in the fiscal ending in march 2018.
1. 7%
2. 7.25%
3. 7.75%
4. 7.5%
11. Which Railway station has been renamed as Deen Dayal Upadhyaya recently?
1. Malihabad
2. Mughalsarai
3. Manoharganj
4. Mininpurva

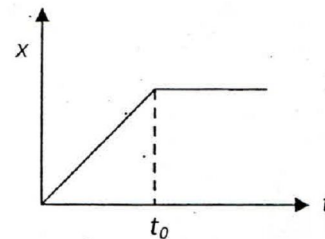
12. The First Female Sikh member of Parliament (M.P) of Britain is
1. Preeti Kaur
2. Preeti Kaur Gill
3. Suman Kaur
4. Suman Kaur Gill
13. Who has manufactured country's first Bio CNG (Bio Methane) bus?
1. TATA Motors
2. Mahindra
3. Maruti
4. Suzuki
14. Which of these digital payment mechanism does not requires an internet connection?
1. USSD
2. UPI
3. e-wallet
4. IMPS
15. First Indian state to make social boycott as crime is
1. Punjab
2. Maharashtra
3. Kerala
4. Andhra Pradesh
16. The characteristic odour of garlic is due to which one of the following compounds?
1. Chlorine containing compounds
2. Fluorine containing compounds
3. Nitrogen containing compounds
4. Sulphur containing compounds
17. The 2017 International Plastic Bag Free Day was observed on?
1. July 03
2. August 05
3. July 02
4. May 07
18. In which state, there was a protest in January 2017 due to a traditional sport, Jallikattu?
1. Tamil Nadu
2. Uttar Pradesh
3. Andhra Pradesh
4. Haryana
19. Which organ in human is known as 'Blood Bank'?
1. Spleen
2. Kidney
3. Heart
4. Liver
20. 'Desert Oak' is a tree whose roots go deep into the ground till they reach water. The depth of these roots nearly 30 times the height of the tree. This tree is found in
1. Rajasthan
2. Abu Dhabi
3. Australia
4. Russia
21. Who is the first Deputy Prime Minister of India?
1. G L Nanda
2. Devi Lal
3. Charan Singh
4. Vallabh Bhai Patel
22. Nomination of Rajya Sabha Members by the president was taken from the constitution of which country?
1. USA
2. Ireland
3. South Africa
4. France
23. What was the theme of 'World Environment Day' 2017 celebrated on 5th June 2017?
1. Think, eat, save
2. Connecting people to nature
3. Many species, one planet, one future
4. Small islands, climate change
24. Who among the following first propounded the idea of 'Basic Education'?
1. Jawahar Lal Nehru
2. Raja Ram Mohan Roy
3. Mahatma Gandhi
4. Dayanand Saraswati
25. The longest sea beach in India
1. Chapora Beach
2. Diu Beach
3. Aksa Beach
4. Mariana Beach

26. How many Indian states share border with Myanmar?
 1. 03
 2. 04
 3. 05
 4. 02
27. Who has become the first Indian woman to be elected as judge of the International Tribunal for the law of the sea?
 1. Nirmala Randhawar
 2. Anamika Rajput
 3. Neeru Chadha
 4. Nidhi Bhandari
28. The Kishtwar National Park is located in which state?
 1. Jammu and Kashmir
 2. Himachal Pradesh
 3. Punjab
 4. Sikkim
29. Which online facility has been launched by the government to provide direct solution to problem of agriculture sector?
 1. e-Krishi Smasya
 2. e-Krishi Samved
 3. e-Krishi Samveda
 4. e-Krishi Solution
30. Which city to host the 2024 Summer Olympics?
 1. Los Angeles
 2. London
 3. Paris
 4. New York
31. Which mobile network offers broadband facility with top download speed of 100 megabit per second on its fibre to the home network?
 1. Reliance Jio
 2. Airtel
 3. BSNL
 4. Vodafone
32. A new fast – growing flower has been named after Prime Minister Narendra Modi I which of the following country?
 1. Cyprus
 2. Lebanon
 3. Palestine
 4. Israel
33. 'Pulitzer Award' is given for which of the following stream?
 1. Agriculture
 2. Journalism and Literature
 3. Science
 4. Maths
34. 'Kuduk' is a language of the people of
 1. Manipur
 2. Arunachal Pradesh
 3. Jharkhand
 4. Mizoram
35. The metamorphosis of tadpoles is not possible if the water in which they are growing does not contain sufficient
 1. Calcium
 2. Oxygen
 3. Iodine
 4. Sodium
36. The role of Villi in the intestine is to
 1. Help in the conversion of starch into simple sugar
 2. Help in transporting the undigested and unabsorbed food from small intestine to large intestine
 3. Absorb water and some salts from the undigested food
 4. Increases the surface area for absorption of digested food
37. Shafi and Hanfi are
 1. Islamic architect styles
 2. Places in Saudi Arabia
 3. Islamic Schools of law
 4. Two Islamic Rulers

38. If you carefully dig a grass plant and observe its roots and leaves you will find that it has
1. Taproots and parallel venation 2. Taproots and reticulate venation
3. Fibrous root and reticulate venation 4. Fibrous root and parallel venation
39. Cereals such as wheat and gram are grown in a area. The soil of this area must be
1. Both loamy and sandy 2. Clayey
3. Both sandy and clayey 4. Both clayey and loamy
40. Which of the following areas was known as Magadh in ancient period?
1. South of Ganga 2. Between Ganga and Yamuna
3. North of Ganga 4. Between Yamuna and Chambal
41. Rig Veda was originally composed in
1. Prakrit 2. Vedic Sanskrit
3. Brahmi 4. Shauraseni
42. Which period is the longest in the human history?
1. Paleolithic age 2. Megalithic age
3. Mesolithic age 4. Neolithic age
43. What is meant by 'Social Justice'?
1. All should have same economic rights
2. All should have same political rights
3. All kings of discrimination based on castes
4. All should be granted right to freedom of religion
44. India's longest bridge inaugurated by Prime Minister Narendra Modi is
1. Dadasaheb Bridge 2. Kamakhya Bridge
3. Dhola Sadiya Bridge 4. Brahmaputra Bridge
45. What refers to a special identification or name that is associated with a product?
1. Lifestyle 2. Market
3. Consumer 4. Brand
46. Name the country where first Hydroelectricity plant was established?
1. Norway 2. Brazil
3. USA 4. Russia
47. Which city in India was designed by the two famous architects, namely Edward Lutyens and Herbert Baker?
1. Calcutta (Kolkata) 2. Madras (Chennai)
3. New Delhi 4. Bombay (Mumbai)
48. Highly indented coastline found along the coast of
1. Atlantic ocean 2. Pacific ocean
3. Indian ocean 4. Arctic ocean
49. In which part of the Hindu Temples, the image of the main deity is placed?
1. Shikhara 2. Mandapa
3. Nriya Graha 4. Garbhagruha
50. 'Chahar Bag' was constructed by which of the following dynasty?
1. The Mughals 2. The Tughlaks
3. The Khiljis 4. The Lodhi's

GENERAL SCIENCE & MATHEMATICS (QUESTION NO 51– 200)

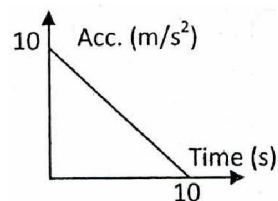
51. Displacement time graph of a particle moving on x-axis is
- (1) Particle is continuously going in +ve x-direction.
 - (2) Particle is at rest.
 - (3) Velocity increases upto time t_0 then becomes constant
 - (4) The particle moves at constant velocity upto a time t_0 and then stops.



52. Consider motion of the tip of second hand of the clock in one minute
- (1) There is no relation between second and minute hand.
 - (2) The distance covered is zero.
 - (3) Average speed is zero.
 - (4) Average velocity is zero.
53. An object may have
- (1) varying speed without having varying velocity.
 - (2) varying velocity without having varying speed.
 - (3) Non-zero acceleration without having varying velocity.
 - (4) None of the above
54. A stone is released from an elevator going up with an acceleration α . The acceleration of stone after release is
- | | |
|-----------------------------|---------------------------|
| (1) α upward | (2) $(g - \alpha)$ upward |
| (3) $(g + \alpha)$ downward | (4) g downward |
55. Internal forces change
- (1) Linear momentum but not kinetic energy
 - (2) Kinetic energy but not linear momentum
 - (3) Total momentum must change.
 - (4) Neither linear momentum nor kinetic energy.
56. Potential energy of a body at the surface of the earth is always
- | | |
|----------|---------------|
| (1) Zero | (2) -ve |
| (3) +ve | (4) Any value |
57. An object dropped from top of tower falls through 40 m during the last two seconds of its fall, the height of tower ($g = 10 \text{ m/s}^2$) will be
- | | |
|----------|----------|
| (1) 60 m | (2) 45 m |
| (3) 80 m | (4) 50 m |
58. If the distance between Sun and Earth is doubled then the duration of year will be
- | | |
|-----------------------|-------------------------|
| (1) Two times | (2) $\frac{1}{4}$ times |
| (3) $2\sqrt{2}$ times | (4) Same |
59. Average density of earth
- | | |
|--------------------------------------|-------------------------------------|
| (1) A complex function of g | (2) Does not depend on g |
| (3) Is inversely proportional to g | (4) Is directly proportional to g |
60. Spring of spring constant k is cut into n parts. The new spring constant of each part will be

- (1) nk (2) $\frac{n}{k}$
 (3) $\frac{k}{n}$ (4) $\frac{1}{nk}$

61. A body starts from rest at time $t = 0$. The acceleration time graph is shown in figure. The maximum velocity attained by the body will be
 (1) 110 m/s
 (2) 50 m/s
 (3) 650 m/s
 (4) 550 m/s



62. A copper disc with a central hole is heated. The diameter of hole
 (1) Increases (2) Decreases
 (3) First increases then decreases (4) Remain unchanged
63. A solid of density D is floating in liquid of density d . If v is the volume of solid submerged in the liquid and V be volume of solid. Then
 (1) $vV = dD$ (2) $\frac{V}{v} = \frac{D}{d}$
 (3) $\frac{v}{V} = \frac{D}{d}$ (4) $Dv = (1 + d)v$
64. A nucleus at rest splits into two nuclear parts having radii in the ratio 1 : 2. Their velocities are in the ratio.
 (1) 8 : 1 (2) 6 : 1
 (3) 4 : 2 (4) 2 : 1
65. Which of the following is self adjusting force
 (1) Static Friction (2) Limiting Friction
 (3) Dynamic Friction (4) Sliding Friction
66. Inside cell current is developed by
 (1) Movement of $-ve$ charge (2) Movement of $+ve$ charge
 (3) Current developed only outside cell (4) (1) and (2) both
67. Momentum has same units as that of
 (1) Impulse (2) Torque
 (3) Moment of momentum (4) Couple
68. A particle is launched from ground at 60° with kinetic energy K . What is its kinetic energy at its highest point.
 (1) $\frac{K}{2}$ (2) K
 (3) 0 (4) $\frac{K}{4}$
69. A motor boat is moving with a constant velocity of 10 m/s encounters water resistance of 1000 N. The power of the motor boat will be
 (1) 10 kW (2) 110 kW
 (3) 1000 kW (4) 10^6 kW
70. An ice cube having a large air bubble is floating in water in a trough. When the whole of ice melts, the level of water in trough.
 (1) Falls (2) Rise

(3) Remains same

(4) First rise then fall

71. A man weight W kg on the surface of earth. What is his weight at a height equal to R , R is, Radius of earth.

(1) W

(2) $W/2$

(3) $W/4$

(4) $W/8$

72. A balloon has $5g$ air. A small hole is pierced into it the air escapes at a uniform rate with a velocity of 4 cm/s if the balloon stricks completely in 2.5 s, then the average force acting on the balloon is

(1) 2 dyne

(2) 50 dyne

(3) 8 dyne

(4) 8 N

73. A machine gun fires n bullets per second, each of mass m . If the speed of each bullet is v . Then the force of recoil is

(1) mng

(2) mnv

(3) $mnvg$

(4) $\frac{mnv}{g}$

74. A man of weight w is standing on a lift which is moving upward with an acceleration a , the apparent weight of the man is

(1) $w\left(1 + \frac{a}{g}\right)$

(2) W

(3) $w\left(1 - \frac{a}{g}\right)$

(4) $w\left(1 - \frac{a^2}{g^2}\right)$

75. A body covers the first half of distance with a velocity v and the second half in double the time taken for first half the average velocity is

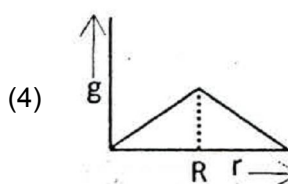
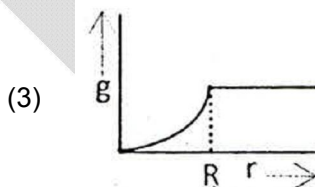
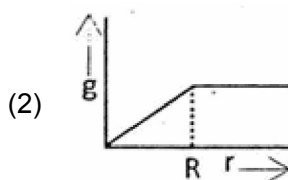
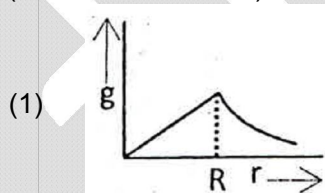
(1) v

(2) $v/2$

(3) $2v/3$

(4) $\frac{2}{3v}$

76. The variation of acceleration due to gravity g with height and depth (r) in shown correctly (R = Radius of earth)



77. One of the rectangular component of a force of 50 N is 30 N. the other rectangular component will be

(1) 40 N

(2) 30 N

(3) 35 N

(4) 45 N

78. When the momentum of body increases by 10% its K.E. increase by

(1) 21%

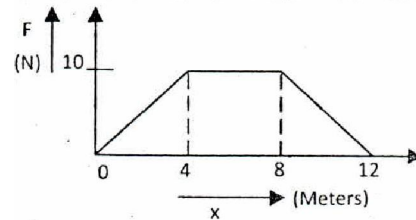
(2) 40%

(3) 44%

(4) None

79. The F-x graph of particle of mass 100 g is shown. If particle begin to move from rest $x = 0$ its velocity at $x = 12$ is

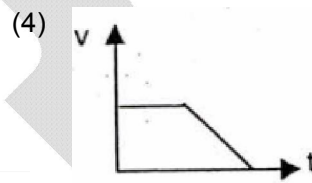
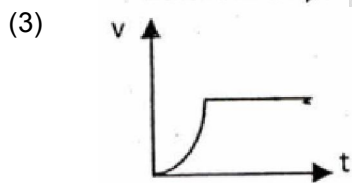
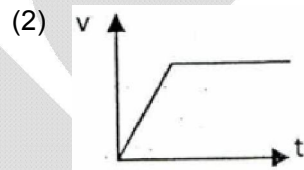
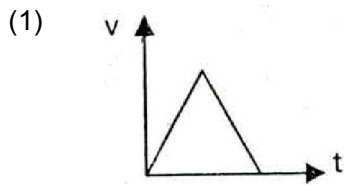
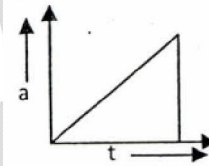
(1) 10 m/s
(2) 20 m/s
(3) 30 m/s
(4) 40 m/s



80. Velocity of sound in air at N.T.P. is 332 m/s. What will be its velocity when pressure is doubled and temperature remains same?

(1) 332 m/s
(2) 664 m/s
(3) 166 m/s
(4) 0

81. For given acceleration – time graph the most suitable velocity time graph will be:



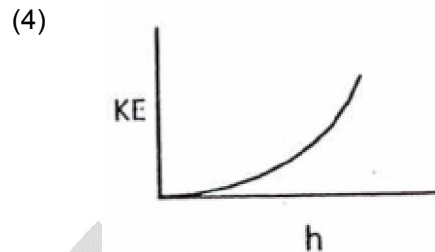
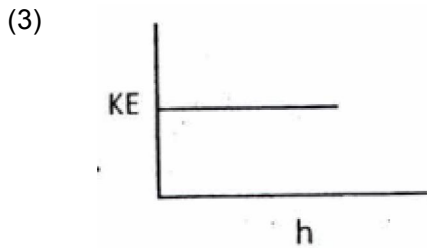
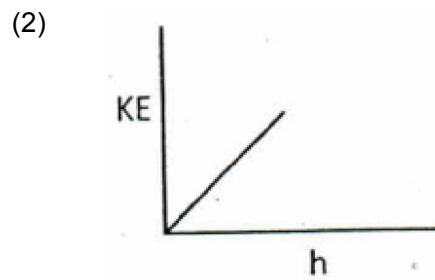
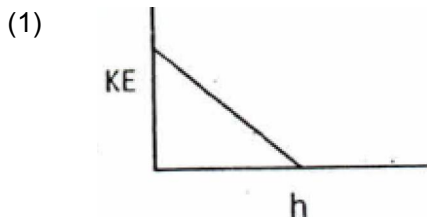
82. A boy releases a ball from top of a building it will clear a window 2 m high at a distance of 10 m below the top in nearly.

(1) 1 s
(2) 1.3 s
(3) 0.6 s
(4) 0.13 s

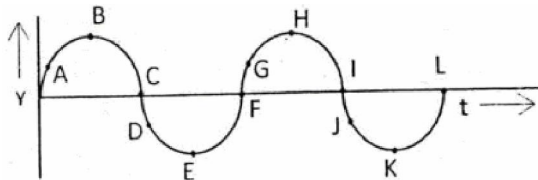
83. A particle starts from rest with uniform acceleration a its velocity after n second is v . The displacement of the body in the last two sec. is:

(1) $\frac{2v}{n}(n-1)$
(2) $\frac{v(n-1)}{n}$
(3) $\frac{v(n+1)}{n}$
(4) $\frac{2v(n+1)}{n}$

84. Which of the following best represents of KE(k) of freely falling body and its height h above ground.



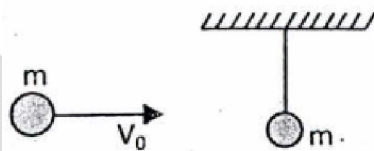
85. In the figure of transverse wave which pair of particle is in phase



- (1) A, G
(3) B, E

- (2) D, G
(4) C, K

86. A sphere of mass m moving horizontally with velocity V_0 collide against a pendulum bob of mass m . If the two masses stick together after the collision then the maximum height attained is



- (1) $\frac{V_0^2}{2g}$
(3) $\frac{V_0^2}{6g}$

- (2) $\frac{V_0^2}{4g}$
(4) $\frac{V_0^2}{8g}$

87. On loading a tuning fork, its frequency.

- (1) Increases
(3) Remain same

- (2) Decreases
(4) First increases then decreases

88. A ship of mass 3×10^7 kg initially at rest is pulled by a force of 5×10^4 N. Through a distance of 3 m. Assuming that the resistance due to water is negligible. The speed of the ship is

- (1) 5 m/s
(3) 1.5 m/s

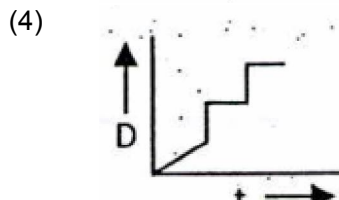
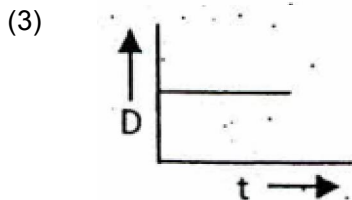
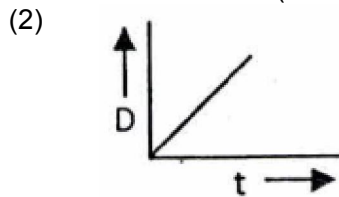
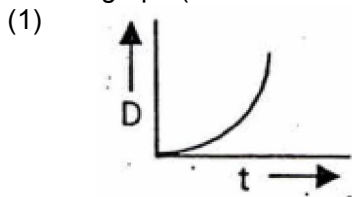
- (2) 0.1 m/s
(4) 60 m/s

89. A man sitting in a train in motion is facing the engine. He tosses a coin up, the coin falls behind him, the train is moving.

- (1) Forward with uniform speed
(3) Forward with acceleration

- (2) Backward with uniform speed
(4) Backward with acceleration

90. Which graph (distance – time) represents the accelerated motion:– (D = Distance)



91. A mixture of milk and groundnut oil can be separated by:

- (1) Sublimation (2) Evaporation
(3) Separating funnel (4) Filtration

92. _____ is added to disinfect water during purification.

- (1) Potassium permanganate (2) Chlorine
(3) Betadine (4) Potash alum

93. Which gas being filled in weather balloon?

- (1) Helium (2) Neon
(3) Hydrogen (4) Nitrogen

94. Formula of Sodium Zincate is:

- (1) Na_2ZnO_3 (2) NaZnO_2
(3) NaZn_2O (4) Na_2ZnO_2

95. The alloy used for dental filling is:

- (1) Amalgam (2) Brass
(3) Bronze (4) Manganin

96. The element which normally exist in the liquid state are

- (1) Bromine and Iodine (2) Mercury and chlorine
(3) Iodine and mercury (4) Bromine and mercury

97. If 20 mL of ethanol is present in 50 mL of its aqueous solution. The concentration of this solution is:

- (1) 20% (2) 25%
(3) 30% (4) 40%

98. In Cu_2O , Cu is:

- (1) Monovalent (2) Bivalent
(3) Trivalent (4) Neutral

99. Among the following which is correct formula:

- (1) CaCl (2) NaS
(3) Na_3N (4) $\text{Na}(\text{NO}_3)_2$

100. _____ Radio active isotope is used to determine the activity of thyroid gland.

- (1) Cobalt - 60 (2) Uranium - 235
(3) Iodine - 130 (4) Iodine - 131

101. Radon is
(1). An inert gas
(2). An artificial fibre
(3). An explosive
(4). A metal
102. Temporary hardness in water is due to which of one the following calcium and magnesium?
(1). Hydrogen Carbonate
(2). Carbonates
(3). Chlorides
(4). Sulphates
103. Symbol of tin is
(1). Pb
(2). Ti
(3). Tn
(4). Sn

104. Which of the following elements corrodes rapidly?
(1). Aluminium (2). Iron
(3). Zinc (4). Silver
105. _____ element does not exhibit electrovalence.
(1). Calcium (2). Chromium
(3). Carbon (4). Cadmium
106. The SI unit of density is:
(1). g/cm^3 (2). kg/cm^3
(3). g^2 (4). kg/m^3
107. Solder is an alloy of
(1). Pb and Sn (2). Zn and Pb
(3). Pb and Zn (4). Zn and Sn
108. Valence of permanganate ion is:
(1). 2 (2). 1
(3). 3 (4). 4
109. $\text{BaCl}_2 + \text{H}_2\text{SO}_4 \longrightarrow \text{BaSO}_4 + 2\text{HCl}$ is an example of:
(1). Combination Reaction (2). Decomposition Reaction
(3). Displacement Reaction (4). Double Displacement Reaction
110. The Chemical used for starch test is:
(1). Iodine Crystal (2). Iodine Solution
(3). Iodine Powder (4). Potassium Iodine
111. The valence of an element depends upon the
(1) total number of proton in an atom
(2) mass number of an atom
(3) total number of neutrons in atom
(4) total number of electrons in the outermost shell of an atom
112. _____ has high density
(1) Lead (2) Kerosene oil
(3) Iron (4) Water
113. 'Tooth paste' is an example of
(1) Colloid (2) Suspension
(3) Solution (4) Aerosol
114. Acid present in 'Tamarind'
(1) oxalic acid (2) formic acid
(3) lactic acid (4) tartaric acid
115. Freezing mixture is
(1) ice plus common salt (2) ice plus potash alum
(3) ice plus baking soda (4) ice plus washing soda
116. Which rays are originated when cathode rays strikes on hard metal surface?
(1) Gamma rays (2) Anode rays
(3) β -rays (4) X-rays
117. During roasting of zinc blende. It converts to
(1) ZnO (2) ZnSO_4
(3) ZnCO_3 (4) Zn

118. _____ is used to detect "Tumors"
(1) Na - 24 (2) I - 131
(3) Co - 60 (4) As - 74
119. Rubber stamp is made by
(1) thermosetting plastic (2) thermoplastic
(3) PVC (4) PAN
120. Which of the following causes no reaction?
(1) $\text{CuSO}_4 + \text{Zn}$ (2) $\text{CuSO}_4 + \text{Fe}$
(3) $\text{CuSO}_4 + \text{Ag}$ (4) $\text{CuSO}_4 + \text{Mg}$
121. _____ is added in ethanol to make it unfit for drinking.
(1) Methanal (2) Propanal
(3) Propanol (4) Methanol
122. Deficiency of which vitamin _____ causes infertility.
(1) E (2) K
(3) H (4) D
123. Nylon fibre has
(1) ester linkage (2) amide linkage
(3) ether linkage (4) phosphate linkage
124. _____ is added to preserve squashes
(1) SO_2 (2) NO_2
(3) SO_3 (4) N_2O
125. The only vitamin with metal atom in, it is
(1) Vitamin - A (2) Vitamin - K
(3) Vitamin - B_{12} (4) Vitamin - E
126. _____ is used in paints
(1) Terylene (2) Nylon
(3) Glyptal (4) Chloroprene
127. In shaving creams _____ is added to prevent rapid drying.
(1) Methanol (2) Glycerol
(3) Ethanol (4) Glycol
128. Glass is a
(1) Liquid (2) Colloid
(3) Pseudo solid (4) Crystalline solid
129. A homogeneous mixture contains two liquids. How are they separated?
(1) By filtration (2) By evaporation
(3) By distillation (4) By condensation
130. In $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$, _____ H_2O molecules are bounded by "H" bond.
(1) 4 (2) 1
(3) 5 (4) 3
131. The cells of cork have a chemical substance in their walls that makes them impervious to water. This chemical substance is:
(1) Pectin (2) Lectin
(3) Suberin (4) Lignin

132. Which one of the following is not a eukaryote:
 (1) Euglena (2) Anabaena
 (3) Spirogyra (4) Agaricus
133. The five kingdom classification was proposed by:
 (1) Copeland (2) Aristotle
 (3) Whittaker (4) Linnaeus
134. Centre of hunger located in:
 (1) Forebrain (2) Midbrain
 (3) Hindbrain (4) Spinal cord
135. Red blood corpuscles are formed in
 (1) Liver (2) Kidneys
 (3) Small intestine (4) Bone marrow
136. Moss and Ferns are found in moist and shady places, because they:
 (1) Need low temperature for nutrition (2) Do not need sun light for photosynthesis
 (3) Require water for fertilisation (4) Cannot complete with sun loving plants
137. The species of plants and animals found exclusively in a particular area are called:
 (1) Endemic (2) Endangered
 (3) Biological (4) Alien
138. Cotton is chemically:
 (1) Protein (2) Cellulose
 (3) Steroids (4) Complex tissue
139. Which of the following organism does not follow 'Cell Theory':
 (1) Bacteria (2) Virus
 (3) Fungi (4) Plants
140. The Largest Part of human brain is
 (1) Medulla oblongata (2) Midbrain
 (3) Cerebellum (4) Cerebrum
141. The Excretory Units of Annelids are:
 (1) Uniferous tubule (2) Flame cells
 (3) Nephridia (4) Malpighian tubule
142. Open vascular system is found in:
 (1) Prawn (2) Snakes
 (3) Fish (4) Man
143. 'Agar-Agar' gel is obtained from:
 (1) Algae (2) Bacteria
 (3) Moss (4) Fungi
144. Yeast is different from bacteria in being:
 (1) Unicellular (2) Multicellular
 (3) Prokaryote (4) Eukaryote
145. Wings of an insect and wings of a bird are an example of:
 (1) Homologous organs (2) Analogous organs
 (3) Vestigial organs (4) Fossils

146. The Book – 'Systema Naturae' was written by:
 (1) Linnaeus (2) Darwin
 (3) Fleming (4) Crick
147. 'Sleeping Sickness' is caused by:
 (1) Staphylococci (2) Leishmania
 (3) Trypanosoma (4) SARS virus
148. Outer covering of virus is made up of:
 (1) Lipid (2) Protein
 (3) RNA (4) DNA
149. Which one of the following substance is non-biodegradable?
 (1) Paper (2) Manure
 (3) Cotton Cloth (4) DDT
150. Right part of human Heart contains:
 (1) Oxygenated blood (2) De-oxygenated blood
 (3) Mixed blood (4) No blood
151. Which one of the following pigment is most abundant in green plants?
 1. Chlorophyll - a 2. Chlorophyll - b
 3. Carotene 4. Xanthophyll
152. Which of the following is the indigenous breed of chickens?
 1. Plymouth Rock 2. White Leghorn
 3. Rhode Island Red 4. Aseel
153. Haemoglobin is dissolved in Plasma of Blood in:
 1. Earthworm 2. Roundworm
 3. Tapeworm 4. Insects
154. The group of plants which has naked embryo and specialised tissue for conduction of water is:
 1. Bryophytes 2. Pteridophytes
 3. Thallophytes 4. Gymnosperm
155. In Bacteria, Penicillin blocks the formation of:
 1. Cell membrane 2. Nucleus
 3. Cell wall 4. Mitochondria
156. The Cell Organelle which involves in detoxification of poison and drugs is:
 1. Golgi Apparatus 2. Lysosome
 3. Smooth Endoplasmic Reticulum 4. Rough Endoplasmic Reticulum
157. Which ions are involved in clotting of blood?
 1. Na^+ 2. K^+
 3. Fe^{3+} 4. Ca^{2+}
158. The best indicator of SO_2 pollutants is:
 1. Algae 2. Lichens
 3. Bryophytes 4. Pteridophytes
159. The vitamin which is generally extracted by human is
 1. Vitamin - C 2. Vitamin - A
 3. Vitamin - D 4. Vitamin - E

160. What will happen to RBCs, if they are placed in hypertonic solution?
 1. The cells will swell up but not burst 2. The cells will shrink
 3. The cells will remain unaffected 4. The cells will burst
161. Which one of the following pair is mismatched?
 1. Apis Indica – Honey
 2. Bombyx mori – Silk
 3. Cycas revoluta – Sago
 4. Musca domestica – Lizard
162. In the following, which body part does not have voluntary muscle?
 1. Leg 2. Mouth
 3. Heart 4. Hand
163. A river with high 'Biochemical Oxygen Demand' (BOD) value is:
 1. Highly polluted 2. Highly clean
 3. High in oxygen level 4. None of these
164. Which of the following is not included in Cryptogams?
 1. Thallophyta 2. Pteridophyta
 3. Bryophyta 4. Gymnosperm
165. Which one of the following is not a true fish?
 1. Shark 2. Eel
 3. Star fish 4. Sea Horse
166. Identify the process that requires ATP energy in order to take place.
 1. Osmosis 2. Diffusion
 3. Facilitated transport 4. Active transport
167. Insectivorous plants grow in soils which have deficiency of:
 1. Calcium 2. Nitrogen
 3. Phosphorus 4. Copper
168. Ozone depletion is caused by:
 (1) CFCs (2) CO₂
 (3) SO₂ (4) CO
169. Intercalary meristem is located at:
 (1) Leaf Margin (2) Tip of Stem
 (3) Base of Leaf (4) Tip of Root
170. In which disease, Immune System is seriously affected?
 (1) Malaria (2) AIDS
 (3) T.B. (4) Rabies
171. Factors of $(a^2 + a)^2 + 4(a^2 + a) - 12$ are
 (1) $(a^2 + a + 6)(a + 2)(a - 1)$ (2) $(a^2 - a + 6)(a - 2)(a + 1)$
 (3) $(a^2 + a + 6)(a - 2)(a - 1)$ (4) $(a^2 + a + 6)(a + 2)(a + 1)$
172. In the sum of two numbers is 7 and the sum of their cubes is 133, then the sum of their squares is
 (1) 19 (2) 39
 (3) 126 (4) 29

173. If $0.5(4x + 1) = 0.3(2x + 1) + 1.6$, then the value of x is

- (1) -1 (2) 1
(3) 2 (4) -2

174. A bag contains card numbers 3, 4, 5, 6, 7,27. One card is drawn, then probability of prime number card is

- (1) $\frac{9}{25}$ (2) $\frac{8}{27}$
(3) $\frac{8}{25}$ (4) $\frac{1}{5}$

175. A man buys apples at a certain price per dozen and sells them at eight times that price per hundred, find his gain or loss percent

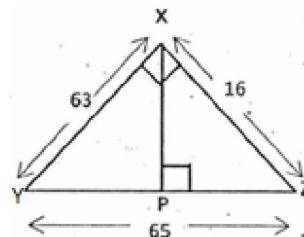
- (1) Gain 4% (2) Loss 4%
(3) Gain 5% (4) Loss 5%

176. Simplify: $\frac{a^4 - a^3b - ab^3 + b^4}{a^4 + a^3b - ab^3 - b^4}$

- (1) $\frac{(a-b)^2}{a+b}$ (2) $\frac{a^2 - b^2}{a^2 + b^2}$
(3) $\frac{a-b}{a+b}$ (4) 1

177. $\triangle XYZ$ is a triangle right angled at X . $XP \perp YZ$. The length of perpendicular XP drawn on YZ is

- (1) 15.5 units (2) 13.5 units
(3) 10.5 units (4) 15.0 units



178. The value of $\left(\frac{\sqrt{4^5} + (\sqrt{2})^{10}}{(\sqrt[3]{4})^9 - (\sqrt[3]{2})^9} \right) \times \sqrt{9}$ is

- (1) $\frac{8}{7}$ (2) $\frac{15}{7}$
(3) $\frac{18}{7}$ (4) $\frac{24}{7}$

179. If $9^{x-2} = 3^{x+1}$, then the value of 2^{1+x} is

- (1) 64 (2) 32
(3) 16 (4) 5

180. If $(x + 1)$ and $(x - 2)$ are the factors of $x^3 + ax^2 - bx - 6$, then the value of a and b are

- (1) $a = 2, b = 3$ (2) $a = 2, b = 5$
(3) $a = 5, b = 2$ (4) $a = 2, b = 7$

181. Value of $\sqrt{\frac{(x^2 + 3x + 2)(x^2 + 5x + 6)}{x^2(x^2 + 4x + 3)}}$ is

(1) $\frac{x+2}{2}$

(2) $\frac{x+2}{x}$

(3) $\frac{x-2}{x}$

(4) $\frac{x+4}{x+3}$

182. $\left(\frac{1}{1-x} + \frac{1}{1+x} + \frac{2}{1+x^2} + \frac{4}{1+x^4} + \frac{8}{1+x^8}\right)$ is equal to

(1) 1

(2) 0

(3) $\frac{8}{1-x^8}$

(4) $\frac{16}{1-x^{16}}$

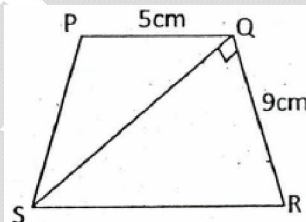
183. PQRS is a trapezium. QR = 9 cm, $\angle RQS = 90^\circ$, PQ = 5 cm and area $(\Delta QRS) = \frac{81}{2\sqrt{3}} \text{ cm}^2$. Find the area of the trapezium

(1) $(7.5 + 13.5\sqrt{3}) \text{ cm}^2$

(2) $(15 + 13.5\sqrt{3}) \text{ cm}^2$

(3) $(11.25 + 13.5\sqrt{3}) \text{ cm}^2$

(4) $27\sqrt{3} \text{ cm}^2$



184. In the given figure, AC is the diameter of the circle.

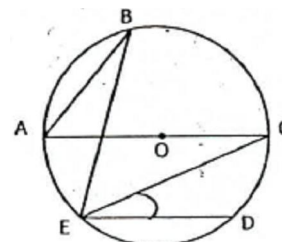
ED \parallel AC, $\angle CBE = 65^\circ$, then $\angle DEC$ is

(1) 35°

(2) 25°

(3) 65°

(4) 30°



185. A bag contains 25 paise, 50 paise and 1 Rs. Coins. There are 220 coins in all and the total amount in the bag is Rs. 160. If there are thrice as many 1 Rs. Coins as there are 25 paise coins, then what is the number of 50 paise coins?

(1) 60

(2) 40

(3) 50

(4) 80

186. If $x + y + z = 2$, $xy + yz + zx = -1$ and $xyz = -2$, then the value of $x^3 + y^3 + z^3$ is:

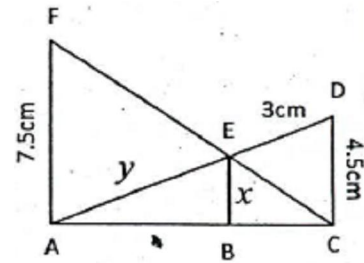
(1) 20

(2) 16

(3) 8

(4) 0

187. In the given figure, if $AF \parallel BE \parallel CD$, $AF = 7.5$ cm, $CD = 4.5$ cm, $ED = 3$ cm, $BE = x$ cm, $AE = y$ cm then value of x and y are



- (1) $x = 2\frac{13}{16}$ cm, $y = 3$ cm
 (2) $x = 3$ cm, $y = 5$ cm
 (3) $x = 5$ cm, $y = 3$ cm
 (4) $x = 2\frac{13}{16}$ cm, $y = 5$ cm

188. In a Rhombus ABCD, $\angle A = 60^\circ$. The ratio of diagonals AC and BD is

- (1) $\sqrt{2} : 1$ (2) $1 : \sqrt{2}$
 (3) $1 : \sqrt{3}$ (4) $\sqrt{3} : 1$

189. If the perimeter of right angled triangle is 60 cm and its hypotenuse is 25 cm, then the area of the triangle is

- (1) 17.5 cm² (2) 50 cm²
 (3) 150 cm² (4) 175 cm²

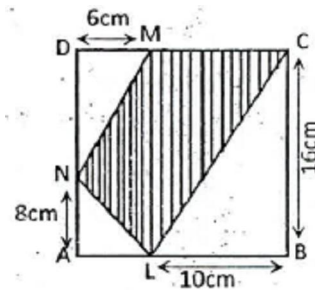
190. If $a + b\sqrt{30} = \frac{\sqrt{2.3} - \sqrt{0.69}}{\sqrt{2.3} + \sqrt{0.69}}$, then the values of a and b are

- (1) $a = \frac{-13}{7}$, $b = \frac{-2}{7}$ (2) $a = \frac{-13}{7}$, $b = \frac{2}{7}$
 (3) $a = \frac{13}{7}$, $b = \frac{-2}{7}$ (4) $a = \frac{13}{7}$, $b = \frac{2}{7}$

191. If $x = 3 - 2\sqrt{2}$, then the value of $x^2 + \frac{1}{x^2}$ is

- (1) 34 (2) 38
 (3) 36 (4) 32

192. In the given figure, ABCD is a square then the area of shaded region is



- (1) 192 cm²
 (2) 168 cm²
 (3) 148 cm²
 (4) 128 cm²

193. If $x = 3 + 3^{2/3} + 3^{1/3}$, then the value of $x^3 - 9x^2 + 18x - 12$ is

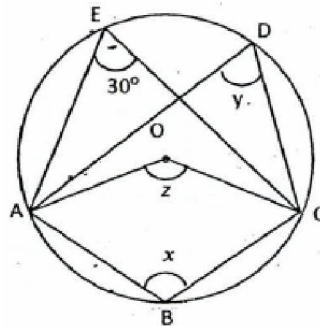
- (1) 1 (2) 0
 (3) -1 (4) 2

194. If $x^a = y^b = z^c$ and $y^2 = zx$, then the value of $\frac{1}{a} + \frac{1}{c}$ is

- (1) $\frac{b}{2}$ (2) $\frac{c}{2}$
 (3) $\frac{2}{b}$ (4) $\frac{2}{a}$

195. In the figure, O is the centre of the circle, then the value of $2x + y + z$ is

- (1) 400°
- (2) 390°
- (3) 360°
- (4) 300°



196. If the points $(a, 0)$, $(0, b)$ and $(1, 1)$ are collinear then which of the following is true:

- (1) $\frac{1}{a} + \frac{1}{b} = 2$
- (2) $\frac{1}{a} - \frac{1}{b} = 1$
- (3) $\frac{1}{a} - \frac{1}{b} = 2$
- (4) $\frac{1}{a} + \frac{1}{b} = 1$

197. What will be the area of the rhombus with equation of sides $ax \pm by \pm c = 0$?

- (1) $\frac{3c^2}{ab}$ sq. units
- (2) $\frac{4c^2}{ab}$ sq. units
- (3) $\frac{2c^2}{ab}$ sq. units
- (4) $\frac{c^2}{ab}$ sq. units

198. For the equation, $2^{a+3} = 4^{a+2} - 48$, the value of a is

- (1) 0
- (2) 1
- (3) -1
- (4) -2

199. The sum of the area of two circles, which touch each other externally is 153π . If the sum of their radii is 15, then ratio of the areas of smaller to the larger circle is

- (1) 1:2
- (2) 1:4
- (3) 1:6
- (4) 1:5

200. The sum of the co-efficient of x^2 and x in the product of $(x+3)(x-5)(x+7)$ is

- (1) 24
- (2) 34
- (3) -24
- (4) -34