

Entrance Exam 2082/Grade IX/Model Question**Instructions:**

- There are altogether **96** questions. For every correct answer from Question No. 1 to 95, candidates will be awarded with 1 full mark except question number **96** that carries 5 marks.
- There won't be any **negative marking in case of wrong answers**.
- Use of **pencil and calculator is prohibited**.
- Read the questions carefully and **Tick (✓)** the correct answer under the options a, b, c and d

1. If two motorcycles are moving at the speed of 50 km/hr and 60 km/hr in the same direction. The relative velocity between these motorcycles in km/hr is

- a. 10 b. 50 c. 60 d. 110

2. In a wheel and axle, radius of wheel is 0.25m and that of axle is 5cm. If a load of 1200N is overcome by using a force 300N, what is the efficiency

- a. 40% b. 50% c. 60% d. 80%

3. What is the principle on which the air braking system is based?

- a. atmospheric pressure b. liquid pressure c. compressed air d. pressure

4. To which wire, in a home's electrification system, is the switch connected?

- a. neutral wire b. fuse wire c. earth wire d. live wire

5. If there are 4 electric bulbs each of power 50 W in a house used for 4 hrs in a day. The electricity bill for the month if the cost of a unit of electricity is Rs 10 is

- a. Rs. 200. b. Rs. 240. c. Rs. 400. d. Rs. 440.

6. Choose the incorrect statement:

- a. The needle of the dip circle rests horizontally on the magnetic equator. c. The angle of dip in the capital of Nepal is 42° .
b. The angle of dip at the magnetic poles is 0° . d. The angle of the dip is used for geographical and geological mapping.

7. If the speed of sound in air is 332m/s then the wavelength of the longest wave that can be heard by human beings is

- a. 16.6 m b. 33.2m c. 49.8m d. 332m

8. If the $2 \times 10^{-5} \text{ W/m}^2$ intensity of sound spreads out in an area of 6 m^2 in 1 second, then the energy carried by the sound wave is

- a. $1.2 \times 10^{-4} \text{ J}$ b. $3.3 \times 10^{-4} \text{ J}$ c. $6 \times 10^{-4} \text{ J}$ d. $2 \times 10^{-5} \text{ J}$

9. Which of the following is not correct regarding concave mirror?

- a. Concave mirrors are used in the torchlight, searchlight and headlight of the vehicle to reflect the light nearly parallel up to a long distance.
- b. It is used by medical doctors to obtain an enlarged view of the organ in the nose, ear, mouth, neck, etc.
- c. It is used for back view of vehicles because it covers large area.
- d. It is used in a solar cooker to converge solar radiation to cook food.

10. The nature and size of an image formed by a concave mirror when the object is placed between the focus and the pole is

- a. real and magnified. b. virtual and magnified. c. real and diminished. d. virtual and diminished.

11. If change in temperature of a body in Fahrenheit is 90 then the corresponding change in Centigrade is

- a. 32.22 b. 50 c. 90 d. 162

12. Natural and external convection are the types of convection. Which one of the following statements is odd regarding the use of convection?

- a. Sea breeze occurs during the daytime.
- b. Due to the significantly higher specific heat capacity of water, the water in the sea is heated more slowly than the land.
- c. The cold air flows from the land to the sea at night which is termed the land breeze.
- d. The hot air flows from the sea to the land at night which is termed the land breeze.

13. Which one of the following is an example of a mechanical wave?

- a. radio wave b. sound wave c. gamma-ray d. X-ray

14. Choose the formula which can't be used to determine power of a body?

[Here, W = work done, t = time, d = displacement, F = force, v = velocity]

- a. W/t b. $F \cdot d / t$ c. $F \cdot t$ d. $F \cdot v$

15. What is the main function of a set-top box (STB)?

- a. receiving the digital signal
- b. displaying the television channel
- c. decoding
- d. all a , b & c

16. When dilute hydrochloric acid and a substance 'X' that can be used as an antacid are combined, a gas Y is produced that is used in fire extinguishers. Determine X and Y.

- a. X: NaHCO_3 , Y: CO_2
- b. X: Na_2CO_3 , Y: CO
- c. X: NaHCO_3 , Y: CO
- d. X: Na_2CO_3 , Y: CO_2

17. Which of the following is not a characteristic of a neutralization reaction?

- a. Resulting salt can be acidic, basic or neutral.
- b. A lot of heat evolves.
- c. Along with salt, water is formed.
- d. Temperature of the reaction mixture decreases

18. The electronic configurations of three elements X, Y and Z are X — 2, 8; Y — 2, 8, 7 and Z — 2, 8, 2. Which of the following is correct?

- a. X is a metal
- b. Y is a metal
- c. Z is a non-metal
- d. Y is a non-metal and Z is a metal

19. The molecular weight of Sulphuric acid is equal to

- a. 36.5
- b. 49
- c. 63
- d. 98

20. The Fractional distillation is a process of separation of:

- a. 2 immiscible liquids
- b. 1 miscible and 1 immiscible liquid
- c. 2 miscible liquids
- d. all of the above

21. Raju went to the jeweler to sell off his pure gold chain. The gold chain weighed 100 gm. If the jeweller melts 100 gm of pure gold and sell it, he will get:

- a. Price for 102 gm of gold
- b. Price for 100 gm of gold
- c. Price for 98 gm of gold
- d. Price for 96 gm of gold

22. Galvanisation is a method of protecting iron from rusting by coating it with a thin layer of

- a. Galium
- b. Aluminium
- c. Zinc
- d. Silver

23. Which of the following pairs will give displacement reactions?

- a. FeSO_4 solution and Copper metal
- b. AgNO_3 solution and Copper metal
- c. CuSO_4 solution and Silver metal
- d. NaCl solution and Copper metal

24. **Non-metals form covalent chlorides because**

- a. they can give electrons to chlorine
- b. they can share electrons with chlorine
- c. they can give electrons to chlorine atoms to form chloride ions
- d. they cannot share electrons with chlorine atoms

25. **The class of medicinal products used to treat stress is?**

- a. Analgesics
- b. Antiseptics
- c. Antihistamines
- d. Tranquilizers

26. **What is the term for seeds being dispersed by attachment to the fur of animals?**

- a. Epizoochory
- b. Endozoochory
- c. Hydrochory
- d. Anemochory

27. **Study the group I. pollinators and GROUP II. method of pollination and choose the correct option to match pollinator with its associated method of pollination from followings.**

Group I. Pollinators	Group II. Method of Pollination
1. Bee	A. Ornithophily
2. Wind	B. Anemophily
3. Bird	C. Entomophily
4. Water	D. Hydrophily

Options

- a. 1-B, 2-A, 3-D, 4-C
- b. 2-B, 1-A, 3-C, 4-D
- c. 3-B, 1-A, 2-D, 4-C
- d. 3-A, 2-B, 1-C, 4-D

28. **Match the cell organelle with its primary function**

Cell Organelle:	Function:
1. Mitochondria	A. Site of photosynthesis
2. Chloroplast	B. Cellular digestion
3. Lysosome	C. Powerhouse of the cell, produces ATP
4. Ribosome	D. Protein factory

Options:

- a. 1-B, 2-A, 3-D, 4-C
- b. 2-A, 1-C, 3-B, 4-D
- c. 3-B, 1-A, 2-D, 4-C
- d. 3-A, 2-B, 1-C, 4-D

29. **Which of the following is a hereditary material?**

- a. Chromosome
- b. nucleus
- c. nucleolus
- d. protoplasm

30. **Who is often referred to as the "Father of Taxonomy"?**

- a. Charles Darwin
- b. Carolus Linnaeus
- c. Gregor Mendel
- d. Aristotle

31. **In the Five Kingdom System, which kingdom includes organisms that lack membrane-bound organelles?**

- a. Kingdom Animalia
- b. Kingdom Plantae
- c. Kingdom Fungi
- d. Kingdom Monera

32. **Who is known as the "father of antibiotics"?**

- a. Louis Pasteur
- b. Alexander Fleming
- c. Robert Koch
- d. Joseph Lister

- 33. Which of the following strategies focuses on preserving genetic material of plants in controlled environments?**
- Habitat restoration
 - In situ conservation
 - Ex situ conservation
 - Wildlife corridors
- 34. Which of the following is NOT a principle of sustainable development?**
- Conservation of ecosystem
 - Conservation of biodiversity
 - Population control
 - Exploitation of natural resources
- 35. Which of the following is an example of vegetative propagation in plants?**
- Planting seeds
 - Grafting
 - Wind dispersal
 - Animal dispersal
- 36. What is the purpose of tissue culture?**
- To produce genetically identical plants
 - To induce mutations in plants
 - To study genetic variations in animals
 - To extract DNA from cells
- 38. Which step involves comparing observed data with the expected outcome in hypothesis testing?**
- Analyzing data
 - Formulating a hypothesis
 - Defining a null hypothesis
 - Collecting data
- 39. Which of the following is NOT a common method used for social engineering attacks?**
- Pretexting
 - Phishing
 - Vishing
 - Port Scanning
- 40. What term describes the unauthorized copying, distribution, or use of copyrighted material such as software, music, or movies?**
- Hacking
 - Piracy
 - Identity theft
 - Cyber espionage
- 41. What is the single value of $25^2 - 15^2$?**
- 400
 - 40
 - 10
 - 50
- 42. What is called a set having one element?**
- Disjoint set
 - Empty set
 - Singleton set
 - Overlapping set
- 43. If $(x - 8)^2 = 100$, what is the minimum value of x ?**
- 2
 - 18
 - 10/8
 - 8/10
- 44. What is the H.C.F of $a^2 - b^2$ and $a^3 - b^3$?**
- $(a - b)$
 - $(a + b)$
 - $(a - b)^2$
 - $(a + b)^2$
- 45. If $a - b = 1$, $b - c = 2$ and $c - a = d$, what is the value of d ?**
- 2
 - 2
 - 3
 - 3
- 46. What will be the product of a number and its reciprocal?**
- 2
 - 1
 - 3
 - Zero
- 47. If $x + \frac{1}{x} = 2$, How much is $x^2 + \frac{1}{x^2}$?**
- 4
 - 3
 - 1
 - 2
- 48. What is the area of circle whose radius is $\sqrt{7}$ m?**
- 21 sq.m
 - 7 sq.m
 - 22 sq.m
 - 44 sq.m
- 49. What is the exterior angle of a triangle whose two interior opposite angles are 42° and 58° ?**
- 50°
 - 100°
 - 180°
 - 360°

50. If 4: $a = b$: 3, then how much is $a \times b$?
- a. 12 b. 24 c. 36 d. 3/4
51. What is the value of $125^{\frac{2}{3}}$?
- a. 625 b. 5 c. 15 d. 25
52. What is the length of a side of a square whose area is 361 sq.m?
- a. 15m b. 19m c. 21m d. 29m
53. What is the length of the hypotenuse of a right-angled triangle whose two sides are 6cm and 8cm?
- a. 30cm b. 10cm c. 20cm d. 30cm
54. If $a = 2$ and $b = 3$, then how much is $a^b + b^a$?
- a. 17 b. 15 c. 36 d. 8
55. What is the L.C.M. of $2x + 3y$ and $(2x + 3y)^2$?
- a. $(2x - 3y)^2$ b. $(2x + 3y)$ c. $(2x + 3y)^2$ d. $(2x - 3y)^2$
56. What index of x will make it equal to $\frac{1}{x}$?
- a. 2 b. -2 c. 1 d. -1
57. If A is 67% of B then how much is B:A equal to?
- a. 67:100 b. 100:67 c. both a. and b. d. None of these
58. The product of the ages of 3 brothers is 20 years. If two of them are twins, how old is the other? Assuming that their ages are whole numbers greater than one.
- a. 5 yrs b. 3 yrs c. 4 yrs d. 6 yrs
59. What is the single value of $100 \div 100 \times 100 + 100 - 100$?
- a. 100 b. 200 c. 20 d. 2000
60. What is the total surface area of a cube whose side is 2 cm?
- a. 4 sq.cm b. 14 sq.cm c. 16 sq.cm d. 24 sq.cm
61. If $(7x)^0$ and $(8x)^0$ form a supplementary angle, find the value of x .
- a. $x = 12^0$ b. $x = 120^0$ c. $x = 20^0$ d. $x = 180^0$
62. If $x^2 = \frac{25}{49}$, find the value of x .
- a. $x = \frac{5}{7}$ b. $x = \pm \frac{5}{8}$ c. $x = \pm \frac{7}{5}$ d. $x = \pm \frac{5}{7}$
63. Find the mean proportional between 2 and 8.
- a. 2 b. 4 c. 5 d. 8
64. What is the product of $(x + y)$ and $(x^2 - xy + y^2)$?
- a. $(x^3 + y^3)$ b. $(x^3 - y^3)$ c. $(x^3 \mp y^3)$ d. $(x^2 + y^2)$
65. 5 dozen sweets are placed equally in 6 plates. What is the number of sweets in each plate?
- a. 600 b. 12 c. 60 d. 10
66. A train covers 200km. in 4 hours. What is its speed in km per hour?
- a. 50km. per hour b. 20km. per hour c. 500km. per hour d. 5km. per hour
67. If the interest of Rs.100 in one year is Rs.10, what is the rate percent per annum?
- a. 1% b. 20% c. 10% d. 30%
68. What is a line segment within a circle that touches 2 points on the circle called?
- a. Diameter b. Segment c. Radius d. Chord
69. What power of 10 gives a googol?

a. 10

b. 100

c. 20

d. 500

70. What is the formula for the area of an equilateral triangle

a. $\frac{\sqrt{3}}{2}a^2$

b. $\frac{\sqrt{3}}{4}a^2$

c. $\frac{\sqrt{2}}{3}a^2$

d. $\frac{\sqrt{3}}{3}a^2$

Read the passage below and answer questions 71 to 75

The happy man is the man who lives objectively, who has free affections and wide interests, who secures his happiness through these interests and affections and through the fact that they in turn make him an object of interest and affection to many others. To be the recipient of affection is a potent cause of happiness, but the man who demands affection is not the man upon whom it is bestowed. The man who receives affection is, speaking broadly, the man who gives it. But it is useless to attempt to give it as a calculation, in the way in which one might lend money at interest, for a calculated affection is not genuine and is not felt to be so by the recipient. What then can a man do who is unhappy because he is encased in self? So long as he continues to think about the causes of his unhappiness, he continues to be self-centered and therefore does not get outside it. It must be by genuine interest, not by simulated interests adopted merely as a medicine. Although this difficulty is real, there is nevertheless much that he can do if he has rightly diagnosed his trouble. If for example, his trouble is due to a sense of sin, conscious or unconscious, he can first persuade his conscious mind that he has no reason to feel sinful, and then proceed, to plant this rational conviction in his unconscious mind, concerning himself meanwhile with some more or less neutral activity. If he succeeds in dispelling the sense of sin, it is possible that genuine objective interests will arise spontaneously. If his trouble is self-pity, he can deal with it in the same manner after first persuading himself that there is nothing extraordinarily unfortunate in his circumstances. If fear is his trouble, let him practise exercises designed to give courage. Courage has been recognized from time immemorial as an important virtue, and a great part of the training of boys and young men has been devoted to producing a type of character capable of fearlessness in battle. But moral courage and intellectual courage have been much less studied. They also; however, have their technique. Admit to yourself every day at least one painful truth, you will find it quite useful. Teach yourself to feel that life would still be worth living even if you were not, as of course you are, immeasurably superior to all your friends in virtue and in intelligence. Exercises of this sort prolonged through several years will at last enable you to admit facts without flinching and will, in so doing, free you from the empire of fear over a very large field.

71. What happens to a man who demands affection?

a. He becomes a victim of a vicious circle.

c. He tends to take a calculated risk.

b. He takes affection for granted from others.

d. His feelings are reciprocated by others.

72. How can one get out of the vicious circle mentioned in the passage?

a. Being true to others and one's internal circumstances

c. By inculcating the habit of self-absorption

b. Admitting to oneself that others could be right

d. By practicing skills of concentration

73. Which of the following, according to the passage, has not been studied much?

a. Ethical and scholarly courage

c. Feeling of guilt and self-pity

b. The state of mind of an unhappy man

d. None of these

74. What should a man who is suffering from the feeling of self-pity do?

- a. He should seek affection from others.
- b. He should develop a feeling of fearlessness.
- c. He should persuade himself that everything is alright in his circumstances.
- d. He should control his passions and emotions.

75. What according to the passage is the real cause of happiness?

- a. Affection received from others
- b. Calculated risk taken
- c. Critical analysis of the happy state of mind
- d. Material rewards and incentives received

76. In my opinion, _____ movies are more entertaining than _____ computer games.

- a. the / the
- b. x / x
- c. the / x
- d. x / the

77. The bus stop's over there, _____?

- a. doesn't it
- b. isn't it
- c. is it
- d. does it

78. The movie, including all the previews, _____ about two hours to watch.

- a. takes
- b. take
- c. have taken
- d. will have taken

79. Have you ever ridden a horse? - No, but I _____ a camel when I visited Egypt last year.

- a. was riding
- b. rode
- c. ride
- d. have ridden

80. The man _____ me _____ to let me know I had left my purse on the roof of the car.

- a. pulled / out
- b. pulled / down
- c. pulled / over
- d. pulled / up

81. "Fragile, handle with care" _____ on the package, but still the contents of the parcel _____ when it arrived.

- a. had been written / was broken
- b. is being written / have been broken
- c. was written / were broken
- d. has been written / is broken

82. "I am sorry I am late," he said "My car broke down."

He _____ and _____.

- a. apologized to be late / explained that his car was broken down
- b. apologized being late / complained that his car was broken
- c. apologized himself of being late / excused himself
- d. apologized for being late / explained that his car had broken down

83. The boss _____ him _____ a suit, though he wanted to wear sportswear.

- a. makes / wear
- b. got / wearing
- c. made / wear
- d. had / worn

84. If I _____ the novels during the summer holiday, I _____ the lesson now.

- a. read / understood b. have read / would understand
c. read / would understand d. had read / could understand

85. As I don't have a car, I have to walk a long way to the office. ____ I had one.

- a. In case b. If only c. Only if d. Hence

86. Identify the meaning of the idiom "Can't judge a book by its cover."

- a. It is easier to read a book than to protect the pages.
b. It is hard to tell how something is simply from its outward appearance.
c. A book's ending can't always be guessed by how it begins.
d. It takes a long time to really know someone.

87. A person who renounces the world and practices self-discipline in order to attain salvation:

- a. Sceptic b. Devotee c. Ascetic d. Antiquarian

88. The chancellor, _____ sons were arrested in the corruption operation, resigned yesterday.

- a. both of whom b. both whose c. both of whose d. both of which

89. A salesman is similar to a diplomat ____ both must have the power of persuasion.

- a. in that b. though c. while d. however

90. I tried to concentrate on my homework but my eyes kept _____ away from the handbook.

- a. digressing b. lapsing c. rambling d. straying

91. It seems likely that, by the end of the week, the costs involved in the construction of the bridge _____ by the Ministry.

- a. would have been announced b. would be announced
c. will have been announced d. are being announced

92. "They were wondering what _____. "The correct alternative to complete the sentence is_____.

- a. was it that the man want to have. b. it was wanted to have by the man
c. it was that the man wanted to have d. was it that the man wanted to have

93. "There are at least 500 kinds of fish that generate appreciable amounts of electricity." The synonym of the underlined word in the sentence is _____.

- a. negligible b. insignificant c. measurable d. inconseque

94. I bought..... equipment from the store.

- a. a few b. few c. little d. a little

95. What do you call a computer on a network that requests files from another computer?

a. A client

b. A host

c. A router

d. A web server

96. Write in three paragraphs on the topic “Only Government Should Operate Schools in the Country”. 5

This image shows a full page of a handwriting practice worksheet. It consists of multiple sets of three horizontal dashed lines, providing a guide for letter height and placement. The lines are evenly spaced across the entire page, which is otherwise blank.
