

For Class V students (5th)

CODE: VIDWAN-LAVA-F1-02-0001

Time Allotted: 2 Hrs.

 Maximum Marks : **240**

- Please read the instructions carefully. You are allotted 5 minutes specifically for this purpose.
- You are not allowed to leave the Examination Hall before the end of the test.

INSTRUCTIONS
A. General Instructions

1. This booklet is your Question paper containing **60 questions**. All questions are compulsory.
2. The question paper having Scientific Aptitude, Maths & General Science.

Marking Scheme :
+4 for correct answer NO NEGATIVE MARKS FOR WRONG ANSWER.

3. Blank papers, clipboards, log tables, slide rules, calculators, cellular phones, pagers, and electronic gadgets in any form are not allowed to be carried inside the examination hall.
4. Fill in the boxes provided below on this page and also write your **Name & Enrollment No.** In the space provided.
5. The answer sheet, a machine-readable (OMR), is provided separately.
6. **DO NOT TAMPER WITH/ MUTILATE THE OMR OR THE BOOKLET.**
7. Do not open the question-paper booklet before being instructed to do so by the invigilators.

B. Filling the OMR

8. On the Response sheet, write in Black Ball Point Pen, your name, your Enrollment No. and Name of the Centre. **Do not write these anywhere else.**
9. Rough spaces are provided for rough work inside the question paper. No additional sheets will be provided for rough work.
10. Use Only **Black Ball Point Pen** to Darken the OMR Sheet

FORMULA ONE TEST

Date.:20- 11 - 2016

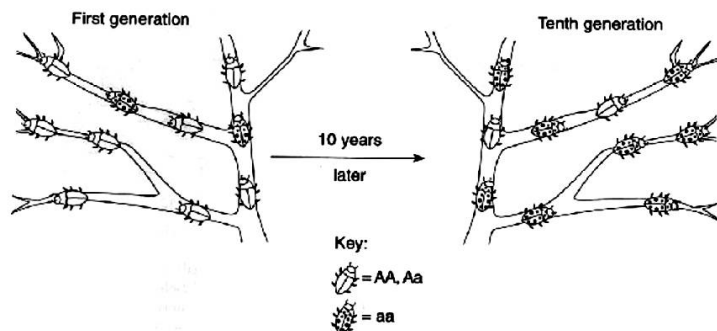
 2nd EDITION

Name of the Candidate	-----
Father's Name	-----
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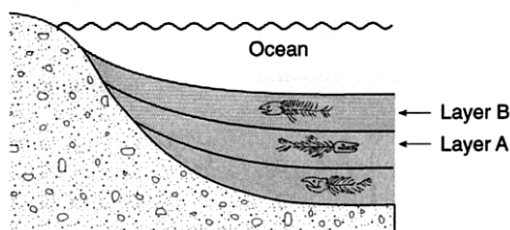


SCIENTIFIC APTITUDE

01. Population genetics shows us that certain traits of a species will become more abundant if they benefit the species. The diagram below illustrates the change that occurred in the frequency of phenotypes in an insect population over 10 generations. A probable explanation for this change would be that over time there was:

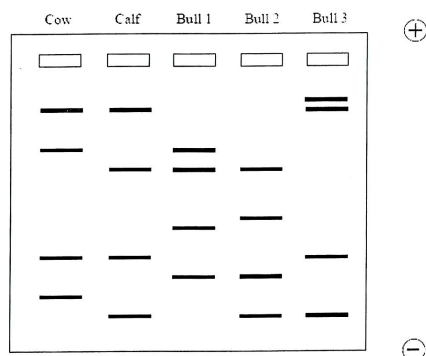


- (a) A decrease in the population of this insect
 (b) An increase in the population of this insect
 (c) A decrease in the adaptive value of gene a
 (d) An increase in the adaptive value of gene a
02. Fossils demonstrate gradualism, the theory on the time frame of evolution that states that species gradually change over time. The diagram below shows undisturbed sedimentary strata at the bottom of an ocean. The fossils found in layer B resemble the fossils found in layer A. Such similarity suggests that:



- (a) The fossils in layer B were formed before the fossils in layer A
 (b) Modern forms of life may have evolved from earlier forms of life
 (c) Vertebrate fossils are only found in sediments
 (d) The fossils in layer A must be more complex than those in layer B
03. Your parents built a tree house for you when you were 8 years old and 4 feet tall. they placed the tree house on a branch of a tree that was 5 feet above the ground in a tree that was 20 feet tall. You are now 17 years old and 6 feet tall. The tree has grown to be 50 feet tall. How high above the ground is the branch on which the tree house is resting now ?
- (a) 4 feet
 (b) 5 feet
 (c) 17 feet
 (d) 20 feet

04. A farmer has three bulls and one cow. The farmer had DNA "fingerprint" of the cow, its new born calf, and each of the three bulls at two or more genetic points. Below is the result of this genetic analysis



From the above information, which of the bulls could be the father of the calf ?

- (a) Bull 1
 - (b) Bull 2
 - (c) Bull 3
 - (d) Bull 1 or 2
05. A large population of laboratory rats was studied for a number of generations. In this population the X gene codes for Brown fur and Y gene codes for black fur. At the beginning, 49% of the rats had black fur. At the end this percentage was the same. The rest of the animals had Brown fur.

What is the most reasonable conclusion that you, the observer, should draw from the fact that the frequency has not changed over time?

- (a) The population is undergoing genetic drift.
- (b) The genotype XX is harmful.
- (c) The two genes are equally adaptive under these laboratory conditions.
- (d) There has been a high rate of mutation from the X gene to Y gene.

Directions (Q. No. 06-09) : The following table gives the percentage of marks obtained by seven students in six different subjects in an examination. Study the table and answer the questions based on it. The numbers in the brackets give the maximum marks in each subject.

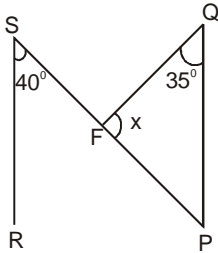
Subjects (Max. Marks)	Maths	Chemistry	Physics	Geography	History	Computer Science
State	(150)	(130)	(120)	(100)	(60)	(40)
Ayush	90	50	90	60	70	80
Aman	100	80	80	40	80	70
Sajal	90	60	70	70	90	70
Rohit	80	65	80	80	60	60
Muskan	80	65	85	95	50	90
Tanvi	70	75	65	85	40	60
Tarun	65	35	50	77	80	80

06. What was the aggregate of marks obtained by Sajal in all the six subjects ?
- 409
 - 419
 - 429
 - 449
07. What is the overall percentage of Tarun ?
- 52.5%
 - 55%
 - 60%
 - 63%
08. What are the average marks obtained by all the seven students in Physics? (rounded off to two digits after decimal)
- 77.26
 - 89.14
 - 91.37
 - 96.11
09. The number of students who obtained 60% and above, marks in all the subjects is :
- 1
 - 2
 - 3
 - None of these
10. Simplify : $\frac{1}{4} + \left[\frac{1}{2} \times \frac{1}{2} + \left\{ \frac{1}{2} \times \frac{1}{2} \div \frac{1}{2} + \left(\frac{1}{2} + \frac{1}{2} \right) \right\} \right]$
- $\frac{5}{6}$
 - $\frac{1}{3}$
 - $\frac{1}{9}$
 - None of these
11. $(-1)^{217} \times (-4)^{11} \times (-3)^{13}$ results is a
- Negative integer
 - Positive integer
 - Zero
 - None of these

12. A tanker contains 500 litres of milk. Due to small hole in the tanker, the quantity of milk is decreasing at the rate of 9 litres every hour. What will be the quantity of milk after 10 hours ?

- (a) 491 litres
- (b) 410 litres
- (c) 90 litres
- (d) None of these

13. In the given figure $PQ \parallel RS$, $\angle RSF = 40^\circ$, $\angle PQF = 35^\circ$ and $\angle QFP = x^\circ$? What is the value of x ?



- (a) 75°
- (b) 105°
- (c) 135°
- (d) None of these

14. The angle which cannot be constructed using a ruler and compass only is

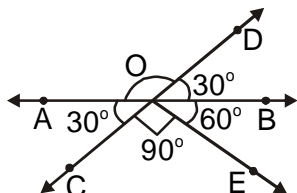
- (a) 15°
- (b) $22\frac{1}{2}^\circ$
- (c) 40°
- (d) 105°

15. 7120 is not divisible by

- (a) 2
- (b) 4
- (c) 6
- (d) 8

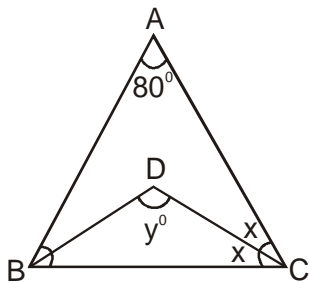
MATHEMATICS

16. **190216536 is written with commas as (Indian system)**
 (a) 190,216,536
 (b) 1,9,0,2,1,65,3,6
 (c) 19,02,16,536
 (d) 1902,1,65,36
17. **What is the value of 50000 in roman numerals**
 (a) V
 (b) \bar{V}
 (c) \bar{L}
 (d) None of these
18. **Raghu is 21 years old and Kavita is 22 years old. Write the sum of their ages in Roman system**
 (a) XXXIII
 (b) XLIII
 (c) LIII
 (d) None of these
19. **Place vlaue of 8 in 86,93,04,600 is**
 (a) Eight crores
 (b) Eighty crores
 (c) Crores
 (d) Eighty six crores
20. **The complete distance around a circle is called the**
 (a) Sector
 (b) Quadrant
 (c) Circumference
 (d) Segment
21. **A quadrilateral has**
 (a) 2 diagonals , 3 angles
 (b) 4 diagonals, 4 angles
 (c) 2 diagonals, 4 angles
 (d) 4 diagonals, 4 angles
22. **Which statement is not true?**



- (a) $\angle DOB$ is acute
 (b) $\angle COE$ is a right angle
 (c) $\angle AOC$ and $\angle COE$ are complementary angles
 (d) $\angle AOE$ and $\angle BOE$ are supplementary angles.

23. Parallel lines are _____ intersecting lines.
- (a) always
 (b) never
 (c) sometimes
 (d) None of these
24. The perimeter of regular pentagon is 10m. Find the length of the side
- (a) 1m
 (b) 2m
 (c) 5m
 (d) None of these
25. In the given figure, $\angle A = 80^\circ$, $\angle B = 60^\circ$, $\angle C = 2x^\circ$ and $\angle BDC = y^\circ$. BD and CD bisect angles B and C respectively.



The value of x and y respectively are :

- (a) 15° and 70°
 (b) 10° and 160°
 (c) 20° and 130°
 (d) 20° and 125°
26. $\frac{3}{4}\left(1 + \frac{1}{3}\right)\left(1 + \frac{2}{3}\right)\left(1 - \frac{2}{5}\right)\left(1 + \frac{6}{7}\right)\left(1 - \frac{12}{13}\right)$ is equal to
- (a) $\frac{1}{5}$
 (b) $\frac{1}{6}$
 (c) $\frac{1}{7}$
 (d) None of these

27. Evaluate : $108 \div 36$ of $\frac{1}{3} + \frac{2}{5} \times 3\frac{3}{4}$

(a) $\frac{42}{2}$

(b) $\frac{21}{2}$

(c) $\frac{6}{4}$

(d) None of these

28. $\frac{13}{48}$ is equal to

(a) $\frac{1}{3 + \frac{1}{1 + \frac{1}{16}}}$

(b) $2 + \frac{1}{1 + \frac{1}{8}}$

(c) $\frac{1}{3 + \frac{1}{1 + \frac{1}{2 + \frac{1}{4}}}}$

(d) None of these

29. What is the value of $\frac{5}{3 + \frac{3}{1 - \frac{2}{3}}}$?

(a) 5

(b) $\frac{5}{3}$

(c) $\frac{5}{12}$

(d) None of these



30. $870 \times 5\frac{2}{3} + 4\frac{4}{5} \div 1\frac{3}{5} = x$. What is the value of x ?

(a) 4933

(b) $4930\frac{2}{3}$

(c) $4932\frac{3}{5}$

(d) None of these

GENERAL SCIENCE


31. Which of the following is not correct about Kwashiorkor?

(a) It is a protein deficiency disease.

(b) It is common in underdeveloped countries.

(c) It is common in adult persons also.

(d) Reddish hair, distended stomach and diarrhea are its most common symptoms.

32.  **Garlic has great medicinal value. It is used to treat wounds, infections, tumors and intestinal parasites.**

When we eat garlic, we are actually eating a _____.

(a) Leaf

(b) Bulb

(c) Tuber

(d) None of the above

33.  **The human body loses water, when**

(a) The person sweats

(b) Air is breathed out

(c) Urine is passed

(d) All the above

34.



Pumpkins are a good source of Vitamin A.

When we eat a pumpkin, we are actually eating a _____.

- (a) Flower
- (b) Bulb
- (c) Fruit
- (d) Stem

35.

Study the chart below.

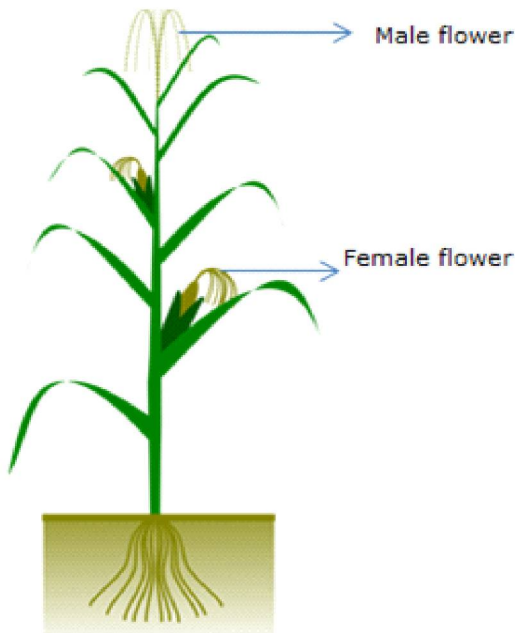


It shows that P develops into Q after P undergoes process S before fertilisation.

What do P, S and Q stand for?

- (a) P - Flower, S - Pollination, Q - Fruit
- (b) P - Fruit, S - Dispersion, Q - Flower
- (c) P - Flower, S - Dispersion, Q - Fruit
- (d) P - Flower, S - Pollination, Q - Seed

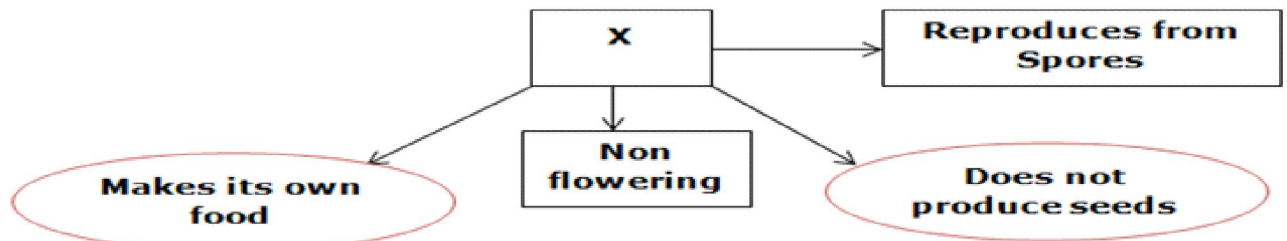
36.



Meg observed a maize plant. What did he infer from his observation?

- (a) As the male and female flowers are on the same plant, fertilisation is not required.
- (b) Not all flowers of the plant can develop into fruit
- (c) All flowers can develop into fruit.
- (d) As the male and female flowers are on the same plant, pollination is not required.

37. The properties of X are given in the map.



Which of the following could be X?

- (a) Bryophyllum
- (b) Pineapple
- (c) Begonia
- (d) Fern

38.



Pong pong



Nipah



Coconut

What is common in the fruits shown?

- (1) They have hooks.
- (2) They are juicy and fleshy.
- (3) They have parachute like structure.
- (4) They have structures that enable them to float on water.

- (a) They have hooks.
- (b) They are juicy and fleshy.
- (c) They have parachute like structures.
- (d) They have structures that enable them to float.

39. Select the increasing size correct order in which these rocks are found:

- (a) sand > gravel > cobble
- (b) gravel > cobble > sand
- (c) sand > cobble > gravel
- (d) cobble > sand > gravel

40. Select the incorrect statement:

- (a) Humans can impact soil formation by removing vegetation
- (b) Microorganisms help in increasing the soil fertility
- (c) Vegetation cannot prevent soil erosion
- (d) Growth of plants is affected by the density and pH of the soil

41. The velocity of action potential conduction across a nerve axon is increased by the presence of the myelin sheath. In the peripheral nervous system, what cell myelinates the axon?
- (a) Oligodendocyte
 - (b) Astrocyte
 - (c) Schwann cell
 - (d) Microglial cell
42. Rods and cones are associated with _____ and _____ vision, respectively.
- (a) Light/dark...color
 - (b) Color...light/dark
 - (c) Near...far
 - (d) Far...near
43. Which of the following is NOT a characteristic of all chordates?
- (a) Notochord
 - (b) Vertebrae
 - (c) Pharyngeal slits
 - (d) Postanal tail
44. The order of normal blood flow through the human heart is
- (a) Right ventricle, right atrium, lungs, left ventricle, left atrium, body
 - (b) Right ventricle, right atrium, body, left ventricle, left atrium, lungs
 - (c) Right atrium, right ventricle, lungs, left atrium, left ventricle, body
 - (d) Right atrium, right ventricle, body, left atrium, left ventricle, lungs
45. Which of the following organisms is INCORRECTLY paired with its trophic level?
- (a) Human - tertiary consumer
 - (b) Beetle - secondary consumer
 - (c) Grass - primary producer
 - (d) Cyanobacteria - primary producer
46. During migrations, some birds use which of the following as reference frameworks?
- I. The sun**
 - II. Constellations**
 - III. Earth's magnetic field**
- (a) I only
 - (b) I and II only
 - (c) I and III only
 - (d) I, II, and III

47. **Syndesmology is the study of**

- (a) Ligaments and bones
- (b) Syndromes
- (c) Joint articulations and ligaments
- (d) Monstrals

48. **Silviculture is cultivation of**

- (a) Rare plants
- (b) Forest trees
- (c) Ornamental plants
- (d) Crops.

49. **Which of the following pairs is mismatch ?**

- (a) Pedology — Soil Science
- (b) Physiology — Study of processes and functions of Life
- (c) Kinesiology — Study of fossils
- (d) Limnology — Study of Fresh Water Ecosystems.

50. **Malaria is transmitted by the**

- (a) Female Anopheles
- (b) Male Anopheles
- (c) Male Culex
- (d) Female Culex.

51. **Which of the following malarial parasites has the longest incubation period ?**

- (a) P. vivax
- (b) P. ovale
- (c) P. malariae
- (d) P. falciparum

52. **A lichen is composed of a fungus and a protobiont. The protobiont is most likely to be a:**

- (a) Green or red algae.
- (b) Sponge.
- (c) Green alga or a cyanobacterium.
- (d) Bryophyte or brown algae.

53. **Training exercises such as jogging, swimming and aerobics will result in skeletal muscle tissue producing an increased:**

- (a) Number of sarcomeres per unit
- (b) Membrane potential at the motor end plate
- (c) Number of motor units
- (d) Number of mitochondria per muscle fiber

54. If a child is blood type O, which of the following blood type is impossible for either parent:
- (a) A
 - (b) B
 - (c) AB
 - (d) None of these
55. In certain areas of Sub-Saharan Africa high levels of anemia are exhibited as a consequence of iron deficiency. What other symptom would you expect might be found in these peoples ?
- (a) Goiter
 - (b) Decrease in immune function
 - (c) High degree of oscillation in blood glucose levels
 - (d) Scurvy
56. Inflammation and injury of the pancreas can cause elevated levels of serum amylase. Injury or disease of which of the following organs might you expect to produce a similar laboratory finding?
- (a) Liver
 - (b) Colon
 - (c) Thyroid
 - (d) Salivary gland
57. When they encounter a predator, small fish form schools that look like balls, thereby:
- (a) Avoiding the predator.
 - (b) Attracting less attention.
 - (c) Looking like another predator.
 - (d) Confusing the predator; it is difficult to pick on a single fish
58. The inspiratory phase of mammal respiration is characterized by:
- (a) Expansion of the rib cage and contraction of the diaphragm.
 - (b) Expansion of the rib cage and relaxation of the diaphragm.
 - (c) Collapse of the rib cage and contraction of the diaphragm.
 - (d) Collapse of the rib cage and relaxation of the diaphragm.
59. Which of the following subdivisions of the autonomic nervous system would be most important to a zebra when it is fleeing from a lion?
- (a) The enteric nervous system
 - (b) The parasympathetic nervous system
 - (c) Both the parasympathetic and enteric nervous systems
 - (d) The sympathetic nervous system
60. Which two brain centers control mammalian respiration?
- (a) Medulla oblongata and substantia nigra
 - (b) Substantia nigra and red nucleus
 - (c) Red nucleus and pons
 - (d) Medulla oblongata and pons

**“ Excellence is a continuous process
and not an accident”**

— Dr. A.P.J. Abdul Kalam

