

ST. MICHAEL'S SR. SEC. SCHOOL

3, PUSA ROAD, NEW DELHI- 110005

SAMPLE PAPER: ENGLISH 2025-26 CLASS XI

MAX MARKS: 80

TIME: 3 HOURS

GENERAL INSTRUCTIONS:

- 1. This paper is divided into three sections: parts: A, B & C. All the sections are compulsory.**
- 2. Separate instructions are given with each section and question, wherever necessary. Read these instructions very carefully and follow them.**
- 3. Do not exceed the prescribed word limit while answering the questions.**

SECTION — A (READING SKILLS)

(26 Marks)

Q1. Read the passage given below:

(10x1=10M)

Chocolate — there's nothing quite like it, is there? Chocolate is simply delicious. What is chocolate? Where does it come from? Christopher Columbus was probably the first to take cacao beans from the New World to Europe in around 1502. But the history of chocolate goes back at least 4,000 years! The Aztecs, who lived in America, thought that their bitter cacao drink was a divine gift from heaven. In fact, the scientist Carolus Linnaeus named the plant Theobroma, which means "food of the gods."

The Spanish explorer Hernando Cortez went to America in 1519. He visited the Mexican emperor Montezuma. He saw that Montezuma drank cacao mixed with vanilla and spices. Cortez took some cacao home as a gift to the Spanish King Charles. In Spain, people began to drink Cortez's chocolate in a drink with chili peppers. However, the natural taste of cocoa was too bitter for most people. To sweeten the drink, Europeans added sugar to the cacao drink. As a sweet drink, it became more popular. By the 17th century, rich people in Europe were drinking it.

Later, people started using chocolate in pastries, like pies and cakes. In 1828, Dutch chocolate makers started using a new process for removing the fat from cacao beans, and getting to the center of the cacao bean. The Dutch chocolate maker Conrad J. van Houten made a machine that pressed the fat from the bean. The resulting powder mixed better with water than cacao did. Now, some call van Houten's chocolate "Dutch chocolate."

It was easy to mix Dutch chocolate powder with sugar. So other chocolate makers started trying new recipes that used powdered chocolate. People started mixing sweetened chocolate with cocoa butter to make solid chocolate bars. In 1849, an English chocolate maker made the first chocolate bar. In the 19th century, the Swiss started making milk chocolate by mixing powdered milk with sweetened chocolate. Milk chocolate has not changed much since this process was invented.

Today, two countries - Brazil and Ivory Coast - account for almost half the world's chocolate. The United States imports most of the chocolate in the world, but the Swiss eat the most chocolate per person. The most chocolate eaten today is sweet milk chocolate, but people also eat white chocolate and dark chocolate.

Cocoa and dark chocolate are believed to help prevent heart attacks, or help keep them from happening. They are supposed to be good for the circulatory system. On the other hand,

the high fat content of chocolate can cause weight gain, which is not good for people's health. Other health claims for chocolate have not been proven, but some research shows that chocolate could be good for the brain.

Chocolate is a popular holiday gift. A popular Valentine's Day gift is a box of chocolate candies with a card and flowers. Chocolate is sometimes given for Christmas and birthdays. Chocolate eggs are sometimes given at Easter.

Chocolate is toxic to some animals. An ingredient in chocolate is poisonous to dogs, cats, parrots, small rodents, and some livestock. Their bodies cannot process some of the chemicals found in chocolate. Therefore, they should never be fed chocolate.

Based on your understanding of the passage, answer the questions given below: 10

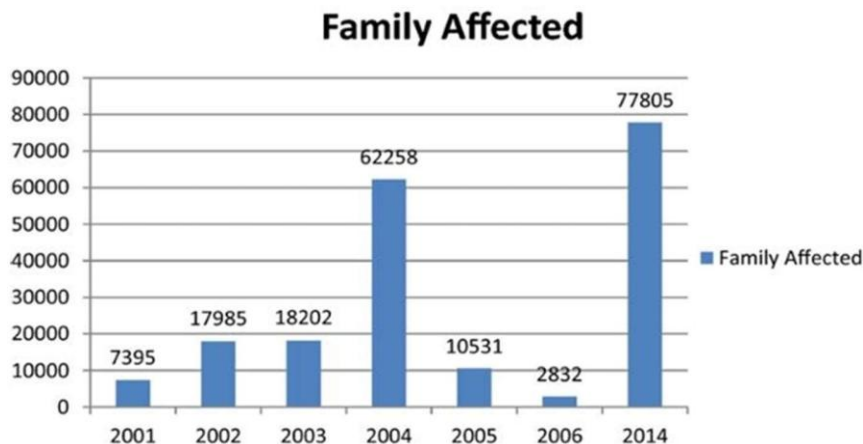
- i. Who took cacao beans from the New World to Europe first?
 - a) A Dutch
 - b) Christopher Columbus
 - c) Hernando Cortez
 - d) Spanish King Charles
- ii. Who thought that chocolate was a divine gift from heaven?
 - a) The Aztecs
 - b) The Dutch
 - c) The Spanish
 - d) The Swiss
- iii. Scientist Carolus Linnaeus named cacao plant as Theobroma, which means:
 - a) A divine gift
 - b) A sweet drink
 - c) Food of the gods
 - d) Refreshing drink
- iv. People of different countries drank cacao mixed with:
 - a) Vanilla and spices
 - b) Chili peppers
 - c) Sugar
 - d) All of the above
- v. Advantages of Cacao and dark chocolates are:
 - a) good for the brain
 - b) help prevent heart attacks
 - c) good for the circulatory system
 - d) all of the above
- vi. Who made the first powdered chocolate?
 - a) Conrad J. van Houten
 - b) Christopher Columbus
 - c) Hernando Cortez
 - d) Spanish King Charles
- vii. Which people eat the most chocolate per person?
 - a) The Aztecs
 - b) The Dutch
 - c) The Swiss
 - d) The Spanish
- viii. The meaning of 'A divine gift' is...
 - a) a delicious gift
 - b) a gift from God

- c) a bitter gift
 - d) a dangerous gift
- ix. When you prevent something, you...
- a) do not let it happen
 - b) do not allow it
 - c) Both a) and b) are correct
 - d) Only a) is correct
- x. If something is toxic, it is...
- a) Disgusting
 - b) Poisonous
 - c) Emotional
 - d) Harmless

2. Read the following passage:

(8X1 = 8M)

Assam is located in the north eastern part of India. The mighty Brahmaputra river, which flows through the state, is the major cause of flooding in the state. The Brahmaputra River is considered the most flood-prone river in the world due to high sediment and unpredictable flooding pattern. Flooding in Assam affects millions of people. The floods are caused by heavy monsoon rains. The water level of the Brahmaputra and its tributaries rise due to this and that results in significant damage to the state's economy and infrastructure. The floods are further exacerbated by the release of water from upstream dams in Bhutan and China. Deforestation and the construction of infrastructure, such as roads and buildings, also contribute to flooding. The impacts of floods are severe. Many people lose their lives, and millions are affected by the flooding. The floods cause damage to crops, livestock, and infrastructure, leading to significant economic losses. The state's road and rail networks are disrupted, making it challenging to transport essential supplies and access medical care. The floods also increase the risk of waterborne diseases, such as cholera and dysentery, and lead to a shortage of clean drinking water.



The state government of Assam takes several measures to mitigate the impact of the floods. The government provides relief measures, such as food, shelter, and medical aid, to those affected by the floods. The government also sets up relief camps to provide temporary housing for those who are displaced. The government also deploys boats and helicopters to

reach those who remain stranded in flooded areas.

To prevent future floods in Assam, there is a need to take a more comprehensive approach. The government should take steps to prevent deforestation and protect the natural environment. It should also regulate the construction of infrastructure and ensure that it does not contribute to flooding. On an individual level, it is necessary to promote afforestation and maintain an ecological balance. Moreover, there is a need to invest in flood-resistant infrastructure and improve the state's drainage system.

Answer the following questions, based on the above passage. 8

- i. Due to high sediment and unpredictable flooding pattern, what the Brahmaputra River is known as?
- ii. What is one reason other than monsoon rain that further exacerbates floods in Assam?
- iii. What does damage to crops, infrastructure, disrupted road and rail networks during floods in the state lead to? iv.
- iv. Assertion: People do not suffer much during flood
Reason: The state government of Assam takes several measures to mitigate the impact of the floods
 - a) Both A and R are correct and R is the correct reason.
 - b) Both A and R are correct but R is not the correct reason.
 - c) A is correct but R is not.
 - d) R is correct but A is not.
- v. During flood,
 - A) medical care always remains accessible
 - B) the risk of waterborne diseases increases
 - C) people remain at home together
 - D) there is shortage of clean drinking water
 - a) A) & D)
 - b) B) & C)
 - c) C) & D)
 - d) B) & D)
- vi. Mention one of the several measures of the state government of Assam to mitigate the impact of the floods.
- vii. Statement 1: Deforestation leads to floods
Statement 2: Till now, Assam government has not taken any step to prevent deforestation.
 - a) Statement 1 can be inferred from the passage but Statement 2 can't.
 - b) Statement 2 can be inferred from the passage but Statement 1 can't.
 - c) Both statements can be inferred from the passage.
 - d) None of the statements can be inferred from the passage.
- viii. In paragraph 3, the word 'mitigate' means
 - a) Compromise
 - b) Minimize
 - c) Finish
 - d) Reduce

Q3. Read the following passage and answer the following questions:

8M

Values are psychological objects. Although we cannot see or touch them, they are every bit as real as any physical object. People may dedicate their entire lives or even give up their lives to pursue

their values. We all have values that determine our decisions and guide our lives. The quality of the values we embrace and the intensity of our commitment to them determine the level of our accomplishment in life. A value is a belief, a mission or a philosophy that is meaningful. Whether we are consciously aware of them or not, every individual has a core set of personal values. Values can range from the common place such as the belief in hard work and punctuality, to the more psychological such as self- reliance, concern for others and harmony of purpose.

Values are powerful determinants of human accomplishment, progress, fulfillment and evolution. Values are those things and processes that we will invest time, energy, money and resources to move towards or away from. Values are the greatest power known to humanity. Values have power when we aspire to achieve them not just, we merely understand they are desirable. Values come alive when our emotions embrace them. Values are an embodiment of higher truth. Values are a path to perfection. Values channel our energies to express at the highest possible level. Values are spiritual skills.

Values multiply the power of action. The power of values comes from feeling and expressing them in action. Just as individuals and organizations set goals and implement plans, they can implement values as well. Value Implementation is a process that can be learned. No matter how high a company's performance, how great its accomplishments, values can take it further As the Internet has the power of a subtle organization, Values are subtle power. Values contain all the powers of the physical, vital, mental energies. One Value, especially if it is representative, by one single act can accomplish at once what others have labored for decades, even centuries, to achieve. Values make life respond.

Values are the essence and source of all high accomplishment. Values create energy that of a higher level and higher power. Every value can be converted into profit-value. Every great achievement by an individual, an organization or a nation has been founded on the expression of high values in action. No matter how great the challenges or constraints, a determined commitment to elevate values can overcome the limitations and carve out a path for recovery and endless expansion. Values create opportunities, attract the market, and make life respond to your aspirations. Values create leaders and they shape our lives. Values create not only wealth and success. They create knowledge, joy, and aspiration.

- i. **On the basis of your reading of the above passage make notes on it, using recognizable abbreviations wherever necessary. Supply a suitable title.** **5**
- ii. **Write a summary of the above passage in about 50 words.** **3**

Section – B (23 marks)
(Grammar and Creating Writing Skills)

4. Answer any seven from I) II) and III)

(7x1=7M)

I) Most Indian schools fail to ensure their students' adequate play time and fitness regime. Two out of every five school going children (a)..... have a healthy Body Mass Index (BMI) and 50% of children (b) adequate lower body strength. Some schools (c)..... found to offer three or (d)..... physical education periods per week.

- (a) (i) does (ii) does not (iii) don't (iv) do
- (b) (i) lack (ii) lacked (iii) have lacked (iv) had lacked
- (c) (i) was (ii) are (iii) is (iv) have
- (d) (i) much (ii) many (iii) more (iv) less

- II) Rearrange the following words and phrases to make meaningful sentences.**
i. that life began/ centuries ago/ scientists think/ twenty million/ on earth/ about
ii. endless process/ the plants and animals/ of evolution/ are the products/ of an

- III) Transform the following sentences as directed.**
i. Are there any restrictions? (Change into an assertive sentence.)
ii. Some girls were helping the wounded man. (Change into passive voice.)

Q5. Attempt any one of the following questions given as choice of different parts:

(i) You want to sell your newly built flat. Draft a suitable advertisement in not more than 50 words to be published in the classified columns of the 'The Assam Tribune' giving all necessary details. You are Niranjana of Nabin Nagar, Guwahati. Word Limit – 50 words.

OR

3

You have lost an expensive watch probably in the market. Write an advertisement for the 'Lost and Found' column of a local newspaper giving all the relevant details. Offer a reward also. Write the advertisement in about 50 words. You are Gopal/Gopa, 4/1, Kimin, Arunachal Pradesh.

(ii) You are a member of the social awareness team of your school and you have to participate in an awareness drive regarding the importance of water. Prepare a poster highlighting the importance and ways of rainwater harvesting that can be implemented by the residents of the area.

OR

3

Tourism Department, Government of Uttarakhand has launched an ambitious plan to develop adventure sports and eco-tourism activities in the state. Prepare a suitable poster for display at important public places /publication in newspapers in about 50 words.

(iii) You are the head girl of your school. Prepare a speech in 120–150 words to be delivered in the morning assembly on the topic "Breaking Stereotypes: What does it truly mean to be a girl today?"

OR

5

Chasing dreams in modern India presents both challenges and opportunities. Write a speech on how young individuals can navigate obstacles and seize possibilities to achieve their aspirations in today's dynamic environment in about 120 -150 words.

(iv) Write a debate for or against on 'The portrayal of women in traditional Indian media is limiting', in about 120-150 words.

OR

5

Write a debate for or against on: Online shopping is detrimental to local businesses in India, in about 120-150 words.

SECTION C - LITERATURE

(Literature Textbook & Supplementary Reading Text)

(31 Marks)

6. Reference to the Context

I) Answer the following questions with reference to context:

3M

*Father and son, we both must live
On the same globe and the same land,
He speaks: I cannot understand Myself,*

*why anger grows from grief.
We each put out on empty hand,
Longing for something to forgive.*

- i. Why must father and son live on the same globe and the same land? 1
a) To take care of each other
b) To not let others to take disadvantage of them staying apart
c) To make their life easy
d) To rebuild their relationship
- ii. What does 'empty hand' signify? 1
- iii. Identify the poetic device used in the second line of the above extract. 1

OR

(For song, issuing from its birth-place, after fulfillment, Wandering, Reck'd or unreck'd, duly with love returns.)

- i. Complete the sentence appropriately. 1
The two lines of the extract are given within parenthesis because
- ii. In this extract the poet is drawing a comparison between 1
a) nature and art
b) poem and sound of rain
c) earth and poem
d) rain and earth
- iii. Complete the following analogy 1
Rain: Enriches the earth ; poetry : enriches

II) Read the given extract carefully and answer the following questions. 3M

We felt sorry for the birds and my mother fetched some bread for them. She broke it into little crumbs, the way my grandmother used to, and threw it to them. The sparrows took no notice of the bread. When we carried my grandmother's corpse off, they flew away quietly. Next morning the sweeper swept the bread crumbs into the dustbin.

- i. Why did the birds take no notice of the bread crumbs? 1
a) For they had eaten a lot
b) For they did not like bread crumbs
c) For they had realised that woman who fed them was no more
d) None of these
- ii. What does the word 'fetch' mean? 1
a) Bring
b) Carry
c) Spread
e) All of these
- iii. Which literary device has been used in 'Sweeper swept away'? 1
a) Personification
b) Alliteration
c) Simile
d) Metonymy

OR

The night dragged on with an an endless, bitterly cold routine of pumping, steering and working the radio. We were getting no replies to our Mayday calls-which was not surprising in this remote corner of the world.

- i. Who are the authors? 1
- a) Gordon Cook and Alan East Khushwant
 - b) and Williams
 - c) Nathalie and Palkhivala None of
 - d) the above
- ii. What is described here? 1
- a) Journey to Cape of Hope
 - b) Journey across Indian Ocean
 - c) Journey across the Pacific
 - d) Mediterranean Sea
- iii. What does 'Mayday'? 1
- a) Blood needed
 - b) Water Death sign
 - c) Distress Signal
 - d)

III) Read the extract carefully and answer the following questions: (1x4=4M)

A. *Mrs. Fitzgerald: I did. Twelve I had of it with my old man rising to be Lieutenant Quarter master. He learnt a lot, and I learnt a lot more. But will you make up your mind now, Mrs. Pearson dear? Put your foot down, once an' for all, an' be the mistress of your own house an' the boss of your own family. Mrs. Pearson: (smiling apologetically) That's easier said than done. Besides, I'm so fond of them even if they are so thoughtless and selfish. They don't mean to be*

- i. What does 'I had of it' relate to? 1
- ii. What is the domestic problem that Mrs. Pearson isn't able to solve? 1
- iii. What do you understand by the phrase 'to put your feet down'? 1
- a) moves out of a place forever
 - b) gather courage to move ahead
 - c) takes a firm stand
 - d) going for a walk
- iv. Which of these statements is true? 1
- Statement 1: Mrs. Fitzgerald is pleasant but worried.
Statement 2: Mrs. Pearson is strong and dominating.
- a) is correct, (2) is incorrect.
 - b) (2) is incorrect, (1) is correct
 - c) Both are correct
 - d) Both are incorrect.

OR

*Your King appears to be a melon.
How did this happen?', they say, 'Well, on
Account of customary choice.
If His Majesty rejoice
In being a melon, that's OK With
us, for who are we to say What
he should be as long as he
Leaves us in Peace and
Liberty?' The principles of laissez
faire Seem to be well-established*

there.

- i. What is the primary reason the people are content with their king being a melon? 1
- a) They are afraid of challenging the king.
 - b) They value peace and liberty over the king's identity.
 - c) They believe a melon makes wise decisions.
 - d) They are indifferent to who the king is.
- ii. Assertion (A): The people question the king's identity. 1
Reason (R): The people are dissatisfied with the governance.
- a) Both A and R are true, and R is the correct explanation of A.
 - b) Both A and R are true, but R is not the correct explanation of A.
 - c) A is true, but R is false.
 - d) A is false, but R is true.
- iii. Which literary device is used in the line "The principles of laissez faire Seem to be well-established there"? 1
- a) Hyperbole
 - b) Irony
 - c) Satire
 - d) Personification
- iv. How does the phrase "for who are we to say What he should be" contribute to the overall theme of the story? 1
- a) It highlights the citizens' respect for traditional roles.
 - b) It underscores the indifference and apathy of the citizens.
 - c) It emphasizes the democratic values of the society.
 - d) It shows the citizens' fear of the king's power.

Q7. Answer any two of the following questions in 40 — 50 words. (2X3=6M)

- i. What changes did King Tut bring out during his reign? 3
- OR**
- How did the Peshwas keep in step with the changing times in the 20th century?
- ii. Elaborate the use of personification in "The Voice of the Rain" and its impact on the poem's message. 3

OR

How does the goldfinch interact with the laburnum tree?

Q8. Answer any one of the following questions in 40 — 50 words. (1X3=3M)

The narrator mentioned 'a crazy streak' running in his family. Which two characters showed this streak in their behaviour and words? Write briefly about them showing how they could be called crazy.

OR

If the address of Mrs. Dorling was correct, why did the narrator resolve to forget it?

Q9. Answer any one of the following questions in 120 — 150 words. (1X6=6M)

What sort of relationship between father and son has the poet shown in the poem 'Father to Son'? 6

OR

The poem 'Childhood' exposes human and presents them in their true colours. All adjectives displaying negative qualities are not enough for such a human. This poem very innocently

goads them to their real self. Explain.

Q10. Answer any one of the following questions in 120 — 150 words. (1X6=6M)

There lies great difference between textbook medicine and world of practising physician. Elaborate.

OR

“The shock treatment makes the thoughtless and selfish persons realize the real position of the lady of the house.” How far do you agree with the statement

FINAL TERM EXAMINATION 2025-26

SAMPLE PAPER

PHYSICS

CLASS XI

TIME: 3HRS

M.M. - 70

GENERAL INSTRUCTIONS:

- (i) All questions are compulsory, however there are internal choices.
- (ii) This question paper has five sections: Section A, Section B, Section C, Section D and Section E
- (iii) Section A contains 12 MCQs of 1 mark each and 4 Assertion Reasoning MCQs of 1 mark each, Section B contains five short answer questions of two marks each, Section C contains seven short answer questions of three marks each, Section D contains 2 Case-based questions of 4 marks each and Section E contains 3 long answer questions of 5 marks each

SECTION A

1. The dimensional formula of Planck's constant is
 - (a) $[M^2L^2T^{-1}]$
 - (b) $[MLT^{-2}]$
 - (c) $[ML^2T^{-2}]$
 - (d) $[ML^2T^{-1}]$
2. The angle between vectors $\mathbf{A} = (10\mathbf{i} + 10\mathbf{j} - 5\mathbf{k})$ and $\mathbf{B} = (10\mathbf{i} - 5\mathbf{j} + 10\mathbf{k})$ is
 - (a) 30°
 - (b) 45°
 - (c) 60°
 - (d) 90°
3. If maximum and minimum values of the resultant of two forces acting at a point are 7 N and 3 N respectively, the smaller force is equal to
 - (a) 4 N
 - (b) 5 N
 - (c) 3 N
 - (d) 2 N
4. Two bodies A and B having mass m and M respectively possess same Kinetic energy. Given that $M > m$. If P_A and P_B are their momenta then which of the following statements is true
 - (a) $P_A = P_B$
 - (b) $P_A > P_B$
 - (c) $P_A < P_B$
 - (d) It cannot be predicted
5. Two particles which are initially at rest move towards each other under the action of their internal attraction. If their speeds are v and $2v$ at any instant, then the speed of the centre of mass of the system will be
 - (a) $2v$
 - (b) Zero
 - (c) $1.5v$
 - (d) v

6. If the mass of Earth is 80 times that of Moon and its diameter is double that of Moon and g on Earth is 9.8 m/s^2 , then the value of g on Moon is
 - (a) 0.98 m/s^2
 - (b) 0.49 m/s^2
 - (c) 9.8 m/s^2
 - (d) 4.9 m/s^2
7. Angular momentum L of a body with moment of inertia I and angular velocity ω rad/sec is equal to
 - (a) I/ω
 - (b) $I\omega^2$
 - (c) $I\omega$
 - (d) $I\omega^3$
8. A steel ball is dropped in oil, then
 - (a) Ball attains constant velocity after some time
 - (b) The ball stops
 - (c) Speed of ball will keep on increasing
 - (d) Speed of the ball will keep on decreasing
9. During adiabatic compression of a gas, the temperature
 - (a) Falls
 - (b) Remains constant
 - (c) Rises
 - (d) Becomes zero
10. The absolute zero is the temperature at which
 - (a) All substances exist in solid state
 - (b) Water freezes
 - (c) Molecular motion ceases
 - (d) Molecular motion increases
11. Two sound waves of slightly different frequencies propagating in the same direction produce beats due to
 - (a) Interference
 - (b) Diffraction
 - (c) Reflection
 - (d) Refraction
12. Time period of a simple pendulum will be doubled, if we
 - (a) Decrease the length 2 times
 - (b) Decrease the length 4 times
 - (c) Increase the length 2 times
 - (d) Increase the length 4 times

For question numbers 13 to 16, two statements are given—one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes

(a), (b), (c) and (d) as given below.

- (a) Both A and R are true and R is the correct explanation of A.
- (b) Both A and R are true but R is NOT the correct explanation of A.
- (c) A is true but R is false.
- (d) A is false and R is true

13. **Assertion:** The projectile has only vertical component of velocity at the highest point of its trajectory.

Reason: At the highest point only one component of velocity is present.

14. **Assertion:** At the centre of the Earth, a body has centre of mass, but no centre of gravity.

Reason: This is because $g = 0$ at the centre of Earth.

15. **Assertion:** Surface tension decreases with increase in temperature.

Reason: On increasing temperature, Kinetic energy increases and intermolecular forces decrease.

16. **Assertion:** In Adiabatic process, change in internal energy is equal to work done on gas.

Reason: In Adiabatic process, no heat exchange occurs with surroundings.

SECTION B

17. Prove that impulse of a force is equal to change in momentum.

18. Derive law of conservation of momentum from Newton's 2nd law of motion

OR

Derive Newton's 3rd law of motion from law of conservation of momentum

19. Derive expression for elastic potential energy of an elastic stretched spring

20. Find the Stress to be applied to a Steel wire to stretch it by 0.025% of its original length.

Young's Modulus for Steel = $9 \times 10^{10} \text{ N/m}^2$

21. Using the law of equipartition of energy, determine the values of C_P , C_V and γ for Monoatomic and Diatomic gases

SECTION C

22. Find the Dimensions of $(a \times b)$ in the Equation $P = (b - x^2)/at$ where P is pressure, x is distance and t is time.

23. Using triangle law of vector addition, find the magnitude and direction of their resultant.

24. What is perfectly elastic Collision. Derive expression for velocities of two bodies after elastic collision.

25. An artificial satellite is going round the Earth, close to its surface. What is the time taken by it to complete one round. Given radius of Earth = 6400 km.

26. Derive expression for work done during Isothermal expansion of an ideal gas

OR

Derive expression for work done during adiabatic expansion of an ideal gas.

27. Discuss the kinetic interpretation of temperature. Hence define absolute zero of temperature.

28. A particle executes SHM with a Time Period of 2 seconds and Amplitude 5 cm. Find (i) Displacement (ii) Velocity and (iii) Acceleration after $1/3$ seconds starting from the mean position.

SECTION D

Questions 29 and 30 are Case Study based questions and are compulsory. Attempt all 4 sub parts from each question. Each question carries 1 mark.

29. Whenever a body moves or tends to move over the surface of another body, a force comes into play which acts parallel to the surface of contact and opposes the relative motion. This opposing force is called friction. Static friction opposes the impending relative motion while

the Kinetic friction opposes the actual relative motion. Static friction is a self – adjusting force. The maximum value of Static friction which comes into play when a body just starts moving over the surface of another body

(i) Which of the following is the dimension of Coefficient of friction.

- (a) $[M L T^{-2}]$
- (b) $[M^0 L^0 T^0]$
- (c) $[M^2 L T^{-2}]$
- (d) $[M^2 L T]$

(ii) A block of mass 50 Kg just slides over a horizontal distance of 1 m. If Coefficient of friction between their surfaces is 0.2, the work done against friction is

- (a) 98 Joules
- (b) 56 Joules
- (c) 72 Joules
- (d) 34 Joules

(iii) It is easier to roll a barrel than to pull it along the road. This statement is

- (a) Not possible
- (b) Uncertain
- (c) False
- (d) True

(iv) Truck and a Car are moving with equal velocity. On applying brakes, both will stop after certain distance, then

- (a) Truck will cover less distance before stopping.
- (b) Car will cover less distance before stopping.
- (c) Both will cover equal distance
- (d) None of these

30. Newton`s laws of motion are applicable to point objects. But a rigid body is a many-particle system. To simplify the motion of such a system, we define mathematically a specific point , called Centre of mass of the system, whose motion under the effect of external forces can describe the motion of the entire system. The Centre of mass of a system of particles is a point where the whole mass of a body is supposed to be concentrated for describing its translatory motion. It is that single point which moves in the same way in which a single particle having the total mass of the system and acted upon by the same external forces would move. The position vector of the Centre of mass is the weighted average of the position vectors of all particles of the system, the contribution of each particle being proportional to its mass

(i) The Centre of mass of a solid cone along the line from the centre of the base to the vertex is at

- (a) One – fourth of the height
- (b) One – third of the height

- (c) One – fifth of the height
 (d) None of the above.
- (ii) Three masses of 2 Kg, 4 Kg and 4 Kg are placed at three points (1,0,0), (0,1,0) and (0,1,0) respectively. The position vector of its centre of mass is
 (a) $(\frac{3}{5})i + (\frac{4}{5})j$
 (b) $(3i+j)$
 (c) $(\frac{2}{5})i + (\frac{4}{5})j$
 (d) $(\frac{1}{5})i + (\frac{3}{5})j$
- (iii) Four particles of masses 2 Kg, 3 Kg, 4 Kg and 8 Kg are situated at the corners of a square of side length 2 m. The centre of mass may be given as
 (a) $(\frac{30}{18}, \frac{28}{18})$
 (b) $(\frac{20}{18}, \frac{24}{18})$
 (c) $(\frac{14}{17}, \frac{24}{17})$
 (d) $(\frac{34}{18}, \frac{34}{18})$
- (iv) Two bodies A and B initially at rest move towards each other under mutual force of attraction . At the instant when the speed of A is v and that of B is $2v$, the speed of the centre of mass of the bodies is.
 (a) $3v$
 (b) $2v$
 (c) $1.5v$
 (d) Zero

SECTION E

31. Using graphical method, derive equations of motion for uniformly accelerated motion along a straight line.

OR

A Projectile is fired with a velocity u making an angle θ with the horizontal. Show that its Trajectory is a parabola. Derive expressions for (i) Time of Flight (ii) Maximum height (iii) Horizontal range

32. State and prove Bernoulli's principal, for the flow of non viscous, incompressible liquid in streamlined flow. Explain Magnus effect.

OR

Derive expression for terminal velocity of a small spherical body falling through a viscous medium. Eight rain drops of radius 1 mm each falling down with terminal velocity of 5 cm/s combine to form a bigger drop. Find the terminal velocity of the bigger drop.

33. Explain geometrical interpretation of S.H.M. Derive an expression for displacement, velocity and acceleration of a particle executing S.H.M.

OR

What is simple pendulum. Derive expression for its time period. If length of a simple pendulum is increased by 45%, what is the percentage increase in its time period.

ST. MICHAEL'S SR. SEC. SCHOOL
CHEMISTRY SAMPLE PAPER-25-26
CLASS 11

Time: 3 Hours

Maximum Marks: 70

General Instructions:

Read the following instructions carefully.

1. There are 33 questions in this question paper with internal choice.
2. SECTION A consists of 16 multiple-choice questions carrying 1 mark each.
3. SECTION B consists of 5 short answer questions carrying 2 marks each.
4. SECTION C consists of 7 short answer questions carrying 3 marks each.
5. SECTION D consists of 2 case - based questions carrying 4 marks each.
6. SECTION E consists of 3 long answer questions carrying 5 marks each.
7. All questions are compulsory.
8. Use of log tables and calculators is not allowed.

SECTION-A

Directions (Q. No. 1-16) : The following questions are multiple-choice questions with one correct answer. Each question carries 1 mark. There is no internal choice in this section.

- 1) Which of the following contains the maximum number of atoms?

(Molar mass of He = 4 g, Na = 23 g, Ca = 40 g)

- (A) 4 g He
(B) 46 g Na
(C) 0.40 moles of Ca
(D) 12 g He
- 2) 5 moles of AB_2 weighs 125 g and 10 moles of A_2B_2 weighs 300 g. The molar mass of A and B (in $g\ mol^{-1}$) respectively are:
- (A) 10, 5

- (B) 50, 25
 (C) 25, 50
 (D) 5, 10
- 3) The electrons, identified by quantum numbers n and l are-
 (I) $n = 4, l = 1$, (II) $n = 4, l = 0$, (III) $n = 3, l = 2$, (IV) $n = 3, l = 1$
 the correct order of increasing energy, from the lowest to highest is-
 (A) (IV) < (II) < (III) < (I)
 (B) (II) < (IV) < (I) < (III)
 (C) (I) < (III) < (II) < (IV)
 (A) (III) < (I) < (IV) < (II)
- 4) Consider the following molecules:
 (I) CO₂ (II) H₂O (III) BF₃ (IV) NH₃
 Out of these, molecule(s) having sp^3 hybridization of central atom is/are-
 (A) I, II, III, IV
 (B) I, II
 (C) II, IV
 (D) IV only
- 5) Which of the following molecule is paramagnetic having bond order two?
 (A) C₂
 (B) N₂
 (C) O₂
 (D) F₂
- 6) Given: C (graphite, s) + O₂ (g) → CO₂ (g) ; $\Delta_r H_o = -393.5 \text{ kJ mol}^{-1}$
 CO (g) + $\frac{1}{2}$ O₂ (g) → CO₂ (g) ; $\Delta_r H_o = -283.0 \text{ kJ mol}^{-1}$ The enthalpy of following reaction will be: C (graphite, s) + $\frac{1}{2}$ O₂ (g) → CO (g)
 (A) $-676.5 \text{ kJmol}^{-1}$
 (B) $-110.5 \text{ kJmol}^{-1}$
 (C) $-196.75 \text{ kJmol}^{-1}$
 (D) 110.5 kJmol^{-1}
- 7) For an isolated system,
 (A) $\Delta U = 0, \Delta S = 0$
 (B) $\Delta U = 0, \Delta S > 0$

(C) $\Delta U > 0, \Delta S < 0$

(D) $\Delta U < 0, \Delta S = 0$.

8) The best suitable method (sequence of reactions) to convert benzene into p-Chlorotoluene is:

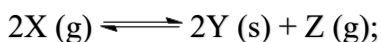
(A) 1. CH_3Cl / anhydrous AlCl_3 2. CH_4 / H^+

(B) 1. Cl_2 / anhydrous AlCl_3 2. CH_3Cl / anhydrous AlCl_3

(C) 1. CH_3Cl / anhydrous AlCl_3 2. Cl_2 / anhydrous AlCl_3

(D) 1. CH_3Cl / H^+ 2. conc. HCl

9) For the equilibrium,



The equilibrium constant K_c for the reaction is 300 and enthalpy of reaction $\Delta H =$

-100 kJ/mol . The equilibrium constant K_p for the reaction at 300 K will be

(A) $9 \times 10^4 \text{ R}$

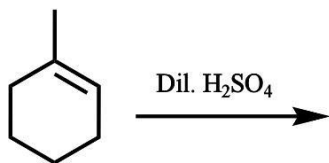
(B) 300 R

(C) R

(D) $1/\text{R}$

(R is universal gas constant)

10) The major product formed in following reaction will be:



(A) 1-Methylcyclohexan-1-ol

(B) 2-Methylcyclohexan-1-ol

(C) 1-Methylcyclohex-2-ene

(D) 1-Methylcyclohexane

11) Oxidation state of Cr in CrO_4^{2-} is:

(A) +2

(B) -2

(C) +6

(D) +7

12) Number of sigma(σ) bonds and pi(π) bonds in ethyne molecule is/are ___ and ---- respectively.

(A) 4, 1

(B) 1, 4

(C) 3, 2

(D) 1, 2

13) Assertion: Cyclopentadienyl anion is aromatic.

Reason: Cyclopentadienyl anion contains 6 π electrons.

(A) Both assertion and reason are correct and reason is correct explanation of assertion

(B) Both assertion and reason are correct but reason is not correct explanation of assertion

(C) Assertion is correct but reason is incorrect

(D) Assertion is incorrect but reason is correct

14) Assertion: Heat(q) and work(w) are not state function but $q + w$ is state function.

Reason: Sum of heat and work gives ΔU .

(A) Both assertion and reason are correct and reason is correct explanation of assertion

(B) Both assertion and reason are correct but reason is not correct explanation of assertion

(C) Assertion is correct but reason is incorrect

(D) Assertion is incorrect but reason is correct

15) Assertion: Halogens exhibits negative E° values.

Reason: Halogens have high electronegativity.

(A) Both assertion and reason are correct and reason is correct explanation of assertion

(B) Both assertion and reason are correct but reason is not correct explanation of assertion

(C) Assertion is correct but reason is incorrect

(D) Assertion is incorrect but reason is correct

16) Assertion: Chlorine has most negative electron gain enthalpy among halogens.

Reason: Chlorine has smallest size and highest electronegativity.

- (A) Both assertion and reason are correct and reason is correct explanation of assertion
- (B) Both assertion and reason are correct but reason is not correct explanation of assertion
- (C) Assertion is correct but reason is incorrect
- (D) Assertion is incorrect but reason is correct

SECTION-B

Directions (Q. Nos. 17-21): This section contains 7 questions with internal choice in two questions. The following questions are very short answer type and carry 2 marks each.

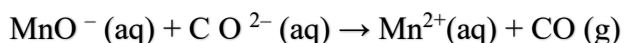
17) Explain positive resonance effect using suitable examples.

OR

Mention the principle involved in following purification techniques:

- (i) Distillation
- (ii) Chromatography

18) Balance the following redox reaction in acidic medium:



19) (i) State law of multiple proportions.

(ii) How 0.5 mol Na_2CO_3 and 0.5 M Na_2CO_3 are different?

20) (i) Define isoelectronic species.

(ii) Write a cation and anion which is isoelectronic with Ar.

21) (i) State Le Chatelier principle.

(ii) Write conjugate acid and base of HCO_3^- ion.

SECTION-C

Directions (Q. Nos. 22-28) : This section contains 5 questions with internal choice in two questions. The following questions are short answer type and carry 3 marks each.

22) A compound contains 4.07 % hydrogen, 24.27 % carbon and 71.65 % chlorine. Its

molar mass is 98.96 g. What are its empirical and molecular formula? (Molar mass of H = 1 g, C = 12 g, Cl = 35.5 g)

23) Define following terms:

- (i) Closed system
- (ii) Intensive property
- (iii) Entropy

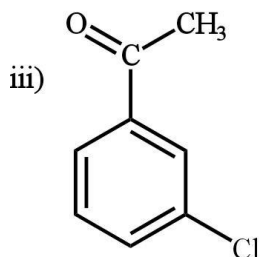
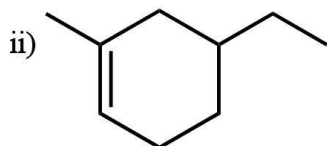
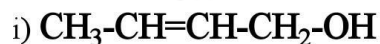
24) Name the period-2 element which has:

- (i) lowest ionization enthalpy
- (ii) positive electron gain enthalpy
- (iii) highest electronegativity

25) Calculate the energy associated with the first orbit of He^+ . What is the radius of this orbit?

26) Write the IUPAC names of following:

OR

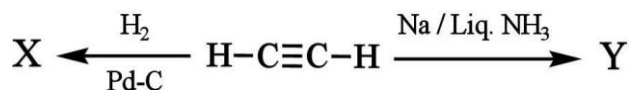


- (i) Write IUPAC names of all chain isomers having molecular formula C_5H_{10} .
- (ii) Identify the type of isomerism exhibited by Ethoxyethane and Methoxypropane.

27) For the reaction, $2\text{A}(\text{g}) + \text{B}(\text{g}) \rightarrow \text{D}(\text{g})$ $\Delta\text{U}^\circ = -10.5 \text{ kJ}$, $\Delta\text{S}^\circ = -44 \text{ J K}^{-1}$

Calculate ΔG° for the reaction, and predict whether the reaction may occur spontaneously

28) Consider the following reactions:



I) Write structures of X and Y.

II) Out of X and Y which have higher boiling point and why?

SECTION-D

Directions (Q. Nos. 29-30) : The following questions are case-based questions. Each question has an internal choice and carries 4 marks each.

29) In an organic reaction, the organic molecule (also referred as a substrate) reacts with an appropriate attacking reagent and leads to the formation of one or more intermediate(s) and finally product(s). Substrate is that reactant which supplies carbon to the new bond and the other reactant is called reagent. If both the reactants supply carbon to the new bond then choice is arbitrary and in that case the molecule on which attention is focused is called substrate. In such a reaction a covalent bond between two carbon atoms or a carbon and some other atom is broken and a new bond is formed.

- (i) Write the intermediate formed in chlorination of ethane.
- (ii) Select the electrophile out of following: H_2O , NH_3 , NF_3 , BF_3
- (iii) Arrange following carbocation in increasing order of stability:
 $\text{CH}_3\text{CH}^{2+}$, $(\text{CH}_3)_2\text{CH}^+$, $\text{O}_2\text{N}-\text{CH}_2\text{CH}^{2+}$

OR

- (iv) Differentiate two types of bond cleavage giving example of each.

30) Hydronium ion concentration in molarity is more conveniently expressed on a logarithmic scale known as the pH scale. The pH of a solution is defined as the negative logarithm to base 10 of the activity (a_{H^+}) of hydrogen ion. In dilute solutions ($< 0.01 \text{ M}$), activity of hydrogen ion (H^+) is equal in magnitude to molarity represented by $[\text{H}^+]$. It should be noted that activity has no units and is defined as:

$$a_{\text{H}^+} = [\text{H}^+] / \text{mol L}^{-1}$$

From the definition of pH, the following can be written,

$$\text{pH} = -\log a_{\text{H}^+} = -\log \{[\text{H}^+] / \text{mol L}^{-1}\}$$

- (i) Give an example of salt formed by reaction of a strong acid and weak base.
- (ii) Give example of basic buffer solution.
- (iii) Calculate the pH of a 0.001 M NaOH solution.

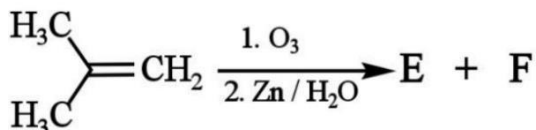
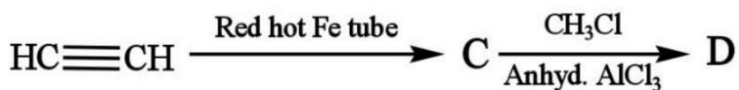
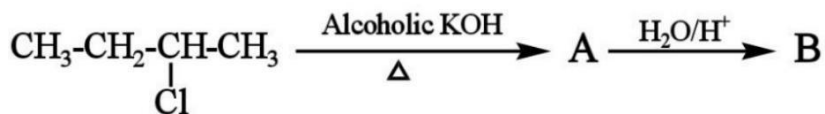
OR

- (v) Explain common ion effect with appropriate example.

SECTION-E

Directions (Q. No. 31-33) : The following questions are long answer type and carry 5 marks each. All questions have an internal choice.

- 31) (i) Complete the reactions by writing structures of A to F.



(ii) Explain Wurtz reaction with appropriate example. Why alkanes containing odd number carbon atoms cannot be synthesised by this reaction?

OR

- (i) Write Friedel-Crafts alkylation reaction and explain its mechanism.
- (ii) Write reactions for following conversions:
 - (a) Benzene to m-Nitroacetophenone
 - (b) Ethyne to Toluene

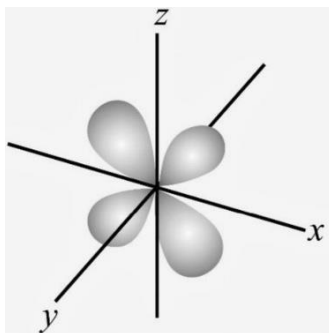
32) (i) Write molecular orbital electronic configurations of N_2 molecule. Calculate its bond order and comment on its magnetic behaviour.

(ii) Explain shapes of following molecules on the basis of VSEPR theory: XeF_4 , ClF_3 , NH_3

OR

- (i) Explain following: (a) NH_3 has higher boiling point than PH_3 . (b) He_2 molecule does not exist. (c) BF_3 molecule is non-polar.
- (ii) Describe the hybridisation of sulphur in SF_6 molecule.

33) (i) Identify the type of orbital whose surface boundary diagram is given below:



- (iii) How many subshells are associated with $n = 3$?
- (iv) Write the electronic configuration of Cr ($Z=24$). Why is it different from the expected configuration?

- (v) What will be the wavelength of a ball of mass 100 g moving with a velocity of 10 m s^{-1} ?

OR

- (i) State Aufbau principle.
- (ii) Mention one difference between principal quantum number (n) and azimuthal quantum number (l).
- (iii) A golf ball has a mass of 40g, and a speed of 45 m/s. If the speed can be measured within accuracy of 2%, calculate the uncertainty in the position.

(Given: $h = 6.626 \times 10^{-34} \text{ J s}$)

ST. MICHAEL'S SR. SEC. SCHOOL
3, PUSA ROAD
SAMPLE PAPER – MATHEMATICS
CLASS X I(2025-26)

Time: 3 hours

Maximum Marks: 80

1. This Question paper contains 38 questions divided into **five sections A,B,C,D,E**. Each section is compulsory. However, there are internal choices in some questions.
2. **Section A** has question number (1-18) as **MCQ's and Question number (19-20)** Assertion-Reason based questions of 1 mark each.
3. **Section B** has Question number (21-25) of **Very Short Answer (VSA)-type** questions of 2 marks each.
4. **Section C** has Question number (26-31) of **Short Answer (SA)-type** questions of 3 marks each.
5. **Section D** has Question number (32-35) of **Long Answer (LA)-type** questions of 5 marks each.
6. **Section E** has Question number (36-38) of **Source based/Case based/passage based/integrated units of assessment questions** (4 marks each) with sub parts.
7. **There is no overall choice however an internal choice have been provided in 2 questions in Section -B , 3 questions in Section- C and 2 questions in Section- D**

Section – A						
Question Number 1-18 are of MCQ type question one mark each.						
1.	$\cos 30^\circ + \cos 90^\circ + \cos 150^\circ + \cos 210^\circ =$ <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px;">(a) 1</td> <td style="padding: 5px;">(b) 0</td> </tr> <tr> <td style="padding: 5px;">(c) $\frac{-\sqrt{3}}{2}$</td> <td style="padding: 5px;">(d) $\frac{1}{2}$</td> </tr> </table>	(a) 1	(b) 0	(c) $\frac{-\sqrt{3}}{2}$	(d) $\frac{1}{2}$	1
(a) 1	(b) 0					
(c) $\frac{-\sqrt{3}}{2}$	(d) $\frac{1}{2}$					
2	Which of the following is <u>not</u> equal to $\cos 2x$? <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px;">(a) $\cos^2 x - \sin^2 x$</td> <td style="padding: 5px;">(b) $1 - 2\sin^2 x$</td> </tr> <tr> <td style="padding: 5px;">(c) $1 - 2\cos^2 x$</td> <td style="padding: 5px;">(d) $\frac{1 - \tan^2 x}{1 + \tan^2 x}$</td> </tr> </table>	(a) $\cos^2 x - \sin^2 x$	(b) $1 - 2\sin^2 x$	(c) $1 - 2\cos^2 x$	(d) $\frac{1 - \tan^2 x}{1 + \tan^2 x}$	1
(a) $\cos^2 x - \sin^2 x$	(b) $1 - 2\sin^2 x$					
(c) $1 - 2\cos^2 x$	(d) $\frac{1 - \tan^2 x}{1 + \tan^2 x}$					

3	<p>Let $X = \{x: x \text{ is an integer and } x^2 < 10\}$ which of the following correctly list all the elements of set X?</p> <table border="1" data-bbox="207 257 1380 414"> <tbody> <tr> <td data-bbox="207 257 790 324">(a) {1, 2, 3}</td> <td data-bbox="790 257 1380 324">(b) {0, 1, 2, 3}</td> </tr> <tr> <td data-bbox="207 324 790 414">(c) {- 1, - 2, - 3, 1, 2, 3}</td> <td data-bbox="790 324 1380 414">(d) {- 1, - 2, - 3, 0, 1, 2, 3}</td> </tr> </tbody> </table>	(a) {1, 2, 3}	(b) {0, 1, 2, 3}	(c) {- 1, - 2, - 3, 1, 2, 3}	(d) {- 1, - 2, - 3, 0, 1, 2, 3}	1
(a) {1, 2, 3}	(b) {0, 1, 2, 3}					
(c) {- 1, - 2, - 3, 1, 2, 3}	(d) {- 1, - 2, - 3, 0, 1, 2, 3}					
4	<p>The domain of the function f given by $f(x) = \frac{x-4}{x^2-16}$ equal to :</p> <table border="1" data-bbox="207 593 1380 716"> <tbody> <tr> <td data-bbox="207 593 790 649">(a) $R - \{4\}$</td> <td data-bbox="790 593 1380 649">(b) $R - \{-4\}$</td> </tr> <tr> <td data-bbox="207 649 790 716">(c) R</td> <td data-bbox="790 649 1380 716">(d) $R - \{4, -4\}$</td> </tr> </tbody> </table>	(a) $R - \{4\}$	(b) $R - \{-4\}$	(c) R	(d) $R - \{4, -4\}$	1
(a) $R - \{4\}$	(b) $R - \{-4\}$					
(c) R	(d) $R - \{4, -4\}$					
5.	<p>If $[.]$ denote the greatest integer function, then which of the following statement is true ?</p> <table border="1" data-bbox="199 907 1388 1064"> <tbody> <tr> <td data-bbox="199 907 790 974">(a) $[x] = x$ for all real x</td> <td data-bbox="790 907 1388 974">(b) $[x] = x$, only when x is an integer</td> </tr> <tr> <td data-bbox="199 974 790 1064">(c) $[x] = x+1$, if x is not an integer</td> <td data-bbox="790 974 1388 1064">(d) $[x] = x-1$, if x is an integer</td> </tr> </tbody> </table>	(a) $[x] = x$ for all real x	(b) $[x] = x$, only when x is an integer	(c) $[x] = x+1$, if x is not an integer	(d) $[x] = x-1$, if x is an integer	1
(a) $[x] = x$ for all real x	(b) $[x] = x$, only when x is an integer					
(c) $[x] = x+1$, if x is not an integer	(d) $[x] = x-1$, if x is an integer					
6	<p>Let $\cos x = \frac{1}{2}$, where x is in radians & lies in third quadrant. If $x = \frac{a\pi}{b}$ with a and b coprime positive integers, then a+b= ?</p> <table border="1" data-bbox="199 1288 1380 1377"> <tbody> <tr> <td data-bbox="199 1288 790 1332">(a) 2</td> <td data-bbox="790 1288 1380 1332">(b) 3</td> </tr> <tr> <td data-bbox="199 1332 790 1377">(c) 5</td> <td data-bbox="790 1332 1380 1377">(d) 7</td> </tr> </tbody> </table>	(a) 2	(b) 3	(c) 5	(d) 7	1
(a) 2	(b) 3					
(c) 5	(d) 7					
7	<p>Which of the following complex number is equal to $Z = i^{1+2+3+\dots+2025}$</p> <table border="1" data-bbox="199 1556 1396 1680"> <tbody> <tr> <td data-bbox="199 1556 790 1612">(a) $1+0i$</td> <td data-bbox="790 1556 1396 1612">(b) $-1+0i$</td> </tr> <tr> <td data-bbox="199 1612 790 1680">(c) $0-i$</td> <td data-bbox="790 1612 1396 1680">(d) $0+i$</td> </tr> </tbody> </table>	(a) $1+0i$	(b) $-1+0i$	(c) $0-i$	(d) $0+i$	1
(a) $1+0i$	(b) $-1+0i$					
(c) $0-i$	(d) $0+i$					
8	<p>Total number of terms in the expansion of $(x - 2\sqrt{x} + 1)^{10}$ is</p> <table border="1" data-bbox="199 1814 1380 1971"> <tbody> <tr> <td data-bbox="199 1814 790 1881">(a) 10</td> <td data-bbox="790 1814 1380 1881">(b) 11</td> </tr> <tr> <td data-bbox="199 1881 790 1971">(c) 20</td> <td data-bbox="790 1881 1380 1971">(d) 21</td> </tr> </tbody> </table>	(a) 10	(b) 11	(c) 20	(d) 21	1
(a) 10	(b) 11					
(c) 20	(d) 21					

9	<p>If $z = \frac{(5+2i)(4-i)}{1+3i}$, then $\text{Im}(z \cdot z^{\bar{}})$ equals to :</p> <table border="1" data-bbox="199 235 1380 392"> <tbody> <tr> <td>(a) 0</td> <td>(b) 2</td> </tr> <tr> <td>(c) 4</td> <td>(d) 6</td> </tr> </tbody> </table>	(a) 0	(b) 2	(c) 4	(d) 6	1
(a) 0	(b) 2					
(c) 4	(d) 6					
10	<p>If $\frac{4}{x+2} < 0$ then x belongs to :</p> <table border="1" data-bbox="199 571 1380 761"> <tbody> <tr> <td>(a) $(-\infty, -2)$</td> <td>(b) $(-2, \infty)$</td> </tr> <tr> <td>(c) $(-\infty, -2) \cup (-2, \infty)$</td> <td>(d) $x \neq -2$</td> </tr> </tbody> </table>	(a) $(-\infty, -2)$	(b) $(-2, \infty)$	(c) $(-\infty, -2) \cup (-2, \infty)$	(d) $x \neq -2$	1
(a) $(-\infty, -2)$	(b) $(-2, \infty)$					
(c) $(-\infty, -2) \cup (-2, \infty)$	(d) $x \neq -2$					
11	<p>If $f(z) = \frac{7-z}{1-z}$, where $z = 1 + 2i$, then $f(z)$ is :</p> <table border="1" data-bbox="199 952 1348 1108"> <tbody> <tr> <td>(a) $\frac{ z }{2}$</td> <td>(b) z</td> </tr> <tr> <td>(c) $2 z$</td> <td>(d) None of these</td> </tr> </tbody> </table>	(a) $\frac{ z }{2}$	(b) $ z $	(c) $2 z $	(d) None of these	1
(a) $\frac{ z }{2}$	(b) $ z $					
(c) $2 z $	(d) None of these					
12	<p>If the focus of the parabola is $(4,0)$ and its directrix is $x=3$ then its equation is :</p> <table border="1" data-bbox="199 1243 1380 1377"> <tbody> <tr> <td>(a) $y^2=16x$</td> <td>(b) $y^2=-16x$</td> </tr> <tr> <td>(b) $x^2=16y$</td> <td>(c) $x^2=-16y$</td> </tr> </tbody> </table>	(a) $y^2=16x$	(b) $y^2=-16x$	(b) $x^2=16y$	(c) $x^2=-16y$	1
(a) $y^2=16x$	(b) $y^2=-16x$					
(b) $x^2=16y$	(c) $x^2=-16y$					
13	<p>The reflection of the point $(2, -5, 3)$ in xz-plane is :</p> <table border="1" data-bbox="199 1467 1380 1601"> <tbody> <tr> <td>(a) $(2, 5, 3)$</td> <td>(b) $(2, -5, 3)$</td> </tr> <tr> <td>(c) $(-2, -5, 3)$</td> <td>(d) $(2, -5, 3)$</td> </tr> </tbody> </table>	(a) $(2, 5, 3)$	(b) $(2, -5, 3)$	(c) $(-2, -5, 3)$	(d) $(2, -5, 3)$	1
(a) $(2, 5, 3)$	(b) $(2, -5, 3)$					
(c) $(-2, -5, 3)$	(d) $(2, -5, 3)$					
14	<p>If $Q = \frac{\cos 4x}{\cos 2x}$, then $(5Q+2)$ equals :</p> <table border="1" data-bbox="199 1803 1380 1960"> <tbody> <tr> <td>(a) $5\cot 2x+3$</td> <td>(b) $5\tan 2x+3$</td> </tr> <tr> <td>(c) $3-5\tan 2x$</td> <td>(d) $3+5\sec 2x$</td> </tr> </tbody> </table>	(a) $5\cot 2x+3$	(b) $5\tan 2x+3$	(c) $3-5\tan 2x$	(d) $3+5\sec 2x$	1
(a) $5\cot 2x+3$	(b) $5\tan 2x+3$					
(c) $3-5\tan 2x$	(d) $3+5\sec 2x$					

15	<p>Equation of the line passing through the point (1,2) and perpendicular to the line $x+y+1=0$ is :</p> <table border="1" data-bbox="197 147 1401 309"> <tbody> <tr> <td data-bbox="197 147 798 219">(a) $y-x+1=0$</td> <td data-bbox="802 147 1401 219">(b) $y-x-1=0$</td> </tr> <tr> <td data-bbox="197 219 798 309">(c) $y-x+2=0$</td> <td data-bbox="802 219 1401 309">(d) $y-x-2=0$</td> </tr> </tbody> </table>	(a) $y-x+1=0$	(b) $y-x-1=0$	(c) $y-x+2=0$	(d) $y-x-2=0$	1
(a) $y-x+1=0$	(b) $y-x-1=0$					
(c) $y-x+2=0$	(d) $y-x-2=0$					
16	<p>If $P(C)=0.4$, $P(D)=0.5$ and $P(C \cap D)=0.2$ Then $P(C \cup D)$ equal to :</p> <table border="1" data-bbox="197 427 1401 589"> <tbody> <tr> <td data-bbox="197 427 798 499">(a) 0.7</td> <td data-bbox="802 427 1401 499">(b) 0.8</td> </tr> <tr> <td data-bbox="197 499 798 589">(c) 0.9</td> <td data-bbox="802 499 1401 589">(d) 1.1</td> </tr> </tbody> </table>	(a) 0.7	(b) 0.8	(c) 0.9	(d) 1.1	1
(a) 0.7	(b) 0.8					
(c) 0.9	(d) 1.1					
17	<p>If A ,B and C are three mutually exclusive and exhaustive events of an experiment such that $P(A) = 0.2$, $P(B) = 0.3$ then $P(C)$ equals to :</p> <table border="1" data-bbox="197 707 1401 869"> <tbody> <tr> <td data-bbox="197 707 798 779">(a) 0.2</td> <td data-bbox="802 707 1401 779">(b) 0.3</td> </tr> <tr> <td data-bbox="197 779 798 869">(c) 0.5</td> <td data-bbox="802 779 1401 869">(d) 0.7</td> </tr> </tbody> </table>	(a) 0.2	(b) 0.3	(c) 0.5	(d) 0.7	1
(a) 0.2	(b) 0.3					
(c) 0.5	(d) 0.7					
18	<p>Mean and standard deviation of the numbers 2,4,6,8,10 are :</p> <table border="1" data-bbox="197 952 1401 1113"> <tbody> <tr> <td data-bbox="197 952 798 1023">(a) Mean = 6, Standard deviation = 2.83</td> <td data-bbox="802 952 1401 1023">(b) Mean = 5, Standard deviation = 2</td> </tr> <tr> <td data-bbox="197 1023 798 1113">(c) Mean = 6, Standard deviation = 3.16</td> <td data-bbox="802 1023 1401 1113">(d) Mean = 5, Standard deviation = 2.24</td> </tr> </tbody> </table>	(a) Mean = 6, Standard deviation = 2.83	(b) Mean = 5, Standard deviation = 2	(c) Mean = 6, Standard deviation = 3.16	(d) Mean = 5, Standard deviation = 2.24	1
(a) Mean = 6, Standard deviation = 2.83	(b) Mean = 5, Standard deviation = 2					
(c) Mean = 6, Standard deviation = 3.16	(d) Mean = 5, Standard deviation = 2.24					
<p>(ASSERTION-REASON BASED QUESTIONS)</p> <p>In the following questions, a statement of assertion (A) is followed by a statement of Reason (R). Choose the correct answer out of the following choices.</p> <p>(a) Both A and R are true and R is the correct explanation of A.</p> <p>(b) Both A and R are true but R is not the correct explanation of A.</p> <p>(c) A is true but R is false.</p> <p>(d) A is false but R is true.</p>						
19	<p>Assertion (A): The inequality $-2x > 6$ is equivalent to $x < -3$</p> <p>Reason (R): When both sides of an inequality are divided or multiplied by a negative number, the inequality sign reverses.</p>	1				
20	<p>Assertion (A) : If $\cos a + \cos b + \cos c = 3$ then $\sin a + \sin b + \sin c = 0$</p> <p>Reason (R) : The cosine of any real angle lies between -1 and 1</p>	1				

(Section B)		
This section contains 5 Very Short Answer (VSA) type questions of 2 marks each.		
Q 21	How many chords can be drawn through 21 points on a circle?	2
Q 22	Prove that: $1 \times 1! + 2 \times 2! + 3 \times 3! + \dots + n \times n! = (n+1)! - 1$	2
Q 23	<p>If $(x + iy)^3 = u + iv$ then show that $\frac{u}{x} + \frac{v}{y} = 4(x^2 - y^2)$.</p> <p style="text-align: center;">OR</p> <p>Evaluate $(1 + i)^4 + (1 - i)^4$</p>	2
Q 24	Find the derivative of $\frac{\cos^2 x}{1 + \sin x}$ w. r. t. x .	2
Q 25	<p>Prove that: $\sin(n+1)x \cdot \sin(n+2)x + \cos(n+1)x \cdot \cos(n+2)x = \cos x$</p> <p style="text-align: center;">OR</p> <p>If $\tan x + \tan y = a$ and $\tan x \tan y = b$, then prove that</p> $\tan(x + y) = \frac{a}{1-b}$	2
Section C		
This section contains 6 Short Answer (SA)-type questions of 3 marks each.		
Q26	In what ratio is the line joining the points (2, 3) and (4, -5) divided by the line passing through the points (6, 8) and (-3, -2).	3
Q27	Solve for real x : $\frac{(2x-1)}{3} \geq \frac{(3x-2)}{4} \leq \frac{(2-x)}{5}$	3
Q28	<p>If $\tan y = 2$, $\frac{\pi}{2} < y < \pi$ then find the value of $\sin \frac{y}{2}$, $\cos \frac{y}{2}$ & $\tan \frac{y}{2}$</p> <p style="text-align: center;">OR</p> <p>Find the value of $\sin 22\frac{1}{2}^\circ$</p>	3
Q29	<p>If $A = \{x: x \in N, 1 < x \leq 5\}$ and $B = \{x: x \in N, 3 \leq x < 7\}$</p> <p>then find the value of</p> <p>(a) $A \cup B$ (b) $A \cap B$</p>	3

Q30	<p>Find the equation of the circle which passes through the point (2,3) and whose center lies at the point of intersection of the lines $x-y=1$ and $x+y=5$</p> <p style="text-align: center;">OR</p> <p>If the length of the major axis of an ellipse is 20 and the length of the minor axis is 16, find the equation of the ellipse with center at the origin and major axis along the x-axis.</p>	3
------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------

Q. 31	<p>If $y = \frac{\sin x + \cos x}{\sin x - \cos x}$ then find $\frac{dy}{dx}$ at $x=0$</p> <p style="text-align: center;">OR</p> <p>Find the value of $\frac{1 - \cos mx}{1 - \cos nx}$</p>	3
--------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------

(SECTION D)

This section contains **four Long Answer (LA)-type** questions of 5marks each.

Q 32	<p>Find the coefficient of x^3 in the product of $(2 - 3x)^5 (1 + x)^4$ using binomial theorem.</p> <p style="text-align: center;">OR</p> <p>Find $(x + 2)^8 + (x - 2)^8$ hence or otherwise evaluate $(\sqrt{5} + 2)^8 + (\sqrt{5} - 2)^8$</p>	5
-------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------

Q 33	<p>If the first term of AP is 2 and the sum of first five terms is equal to one fourth of the sum of next five terms , then show that 20 th term is -112.</p>	5
-------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------	----------

Q 34	<p>(a) Find the sum of the series $4+44+444+ \dots +n$ terms .</p> <p style="text-align: center;">$\frac{1}{2} \cdot \frac{1}{4} \cdot \frac{1}{8} \cdot \frac{1}{16} \dots$</p> <p>(b) Prove that $2^{\frac{1}{2}} \cdot 4^{\frac{1}{8}} \cdot 8^{\frac{1}{24}} \cdot 16^{\frac{1}{64}} \dots \infty = 2$</p> <p style="text-align: center;">OR</p> <p>If p and q are roots of $x^2 - 4x + a = 0$ and r,s are roots of $x^2 - 8x + b = 0$ where p,q,r,s form a Geometrical Progression Prove that $\frac{a+b}{b-a} = \frac{10}{6}$</p>	5
-------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------

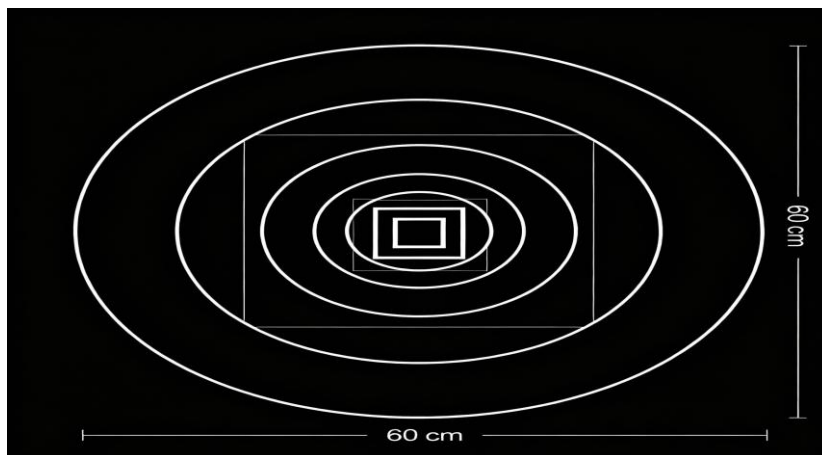
Q35	<p>The mean and variance of eight observations are 9 and 9.25 respectively. If six of observations are 6,7,10,12,12 and 13, then find the remaining two observations .</p>	5
------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------

Section E

Source based/Case based/passage based/integrated units of assessment Questions

Q36

Geometric mathematics is deeply intertwined with art, particularly in patterns involving circles such as mandalas, rangoli, and ancient mosaic designs. Consider a pattern formed by drawing a circle of radius 60 cm. Inside this circle, another circle is drawn whose radius is half that of the previous circle, and this process continues infinitely so that each new circle has half the radius of the previous one. Such recursive, concentric circle patterns are widely used in traditional and modern art forms.
Suppose the radius of the first (outermost) circle is 60 cm.



Answer the following:

- (i) What is the radius of the third circle?
- (ii) Find the area of the second inner circle.
- (iii) What is the perimeter (circumference) of the fourth circle?

OR

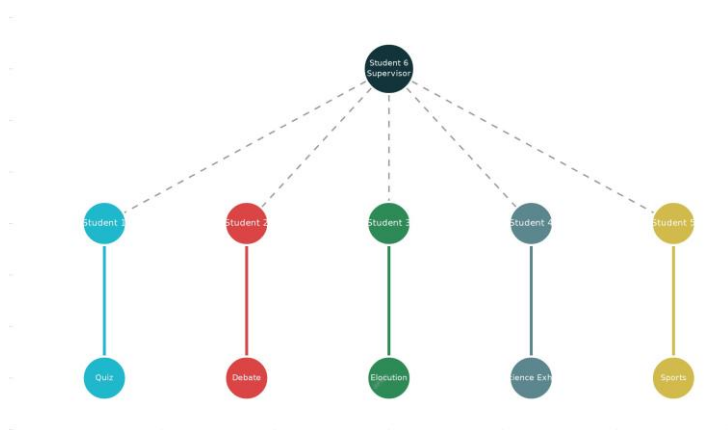
- (iii) Find the total sum of areas of all circles if the process continues infinitely.

1
1
2

Q37

A school is organizing an inter-school event where 5 different competitions (Quiz, Debate, Elocution, Science Exhibition, and Sports) will take place on the same day. There are 6 student organizers selected from Class XI. Each competition requires a unique student organizer to lead it; no student can lead more than one event.

Event Assignment Permutation



During the planning, the following sub-questions arise:

(i) In how many different ways can the 6 organizers be assigned so that 5 of them are selected to lead the 5 competitions, while the sixth organizer acts as a supervisor?

1

(ii) If two of the competitions (Quiz and Science Exhibition) must be led by female students and among the 6 organizers, only 2 are females, in how many ways can the assignments for all competitions be made?

1

(iii) Suppose the organizers have to be seated in a row for a photo and the supervisor must be seated at one end. In how many ways can they be arranged?

2

OR

(iii) If the event is conducted annually and the 6 organizers are to be assigned to the 5 events and supervisor role in such a way that no student repeats the same role in two consecutive years, what is the minimum number of years before all possible assignments are exhausted without any repetition for any individual in any given role?

Q 38

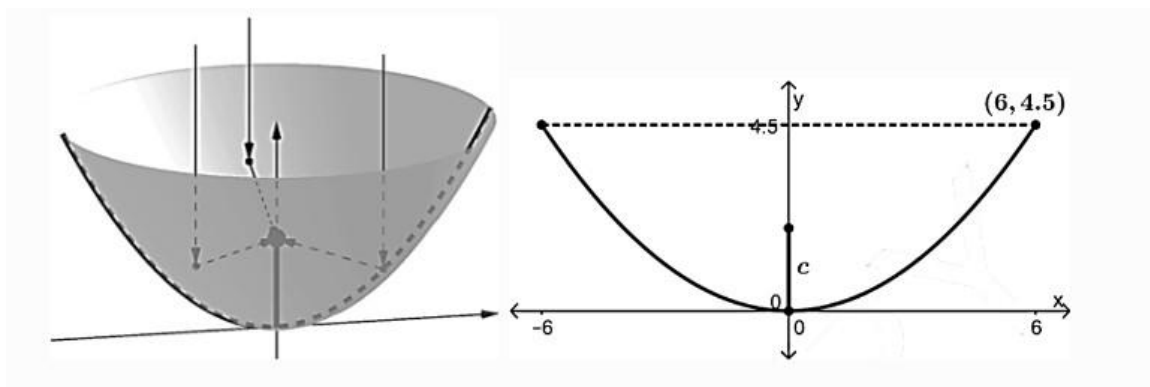
A satellite dish has a shape called a paraboloid, where each cross section is parabola. Since radio signals (parallel to axis) will bounce off the surface of the dish to the focus, the receiver should be placed at the focus. The dish is 12 ft across, and 4.5 ft deep at the vertex.

2+2

Based on above situation answer the following:

(i) Write the equation of the parabola representing the cross section of the dish with the vertex at the origin.

(ii) In the parabola representing the satellite dish, find the distance from the vertex to the focus where the receiver should be placed.



General Instructions:

The question paper consists of 5 sections namely and 37 Questions

Section – A consists of **18 questions (Q1 – Q18)** Each question is a Multiple-Choice Question (**M.C.Q.**) of **1 mark** each.

Section – B consists of **6 questions (Q19 – Q24)**. Each question is of **2 marks** and must be answered in about 40-60 words. **Attempt any 5.**

Section – C consists of **6 questions (Q25 – Q30)**. Each question is of **3 marks** and must be answered in about 80-100 words. **Attempt any 5.**

Section – D consists of **3 questions (Q31 – Q33)**. Each question is of **4 marks** and must be answered in about 100-150 words.

Section – E consists of **4 questions (Q34 – Q37)**. Each question is of **5 marks** and must be answered in about 200-300 words. **Attempt any 3.**

SECTION – A

1 What is the aim of Physical Education?

- (a) Physical Development
(c) Social Development

- (b) Mental Development
(d) Wholesome Development

2 Which of the following is not an Olympic Value?

- (a) Prosperity (b) Excellence (c) Friendship (d) Respect

3 Identify the Shat Karma in the picture given below.



- (a) Neti (b) Dhauti (c) Kapabhati (d) Trataka

4 Which are the two types of disabilities?

- (a) Mental & Cognitive
- (b) Physical & Mental
- (c) Physiological & Emotional
- (d) Emotional & Physical

5 BMI is the ratio between weight and _____.

- (a) height
- (b) age
- (c) pulse rate
- (d) waist measurement

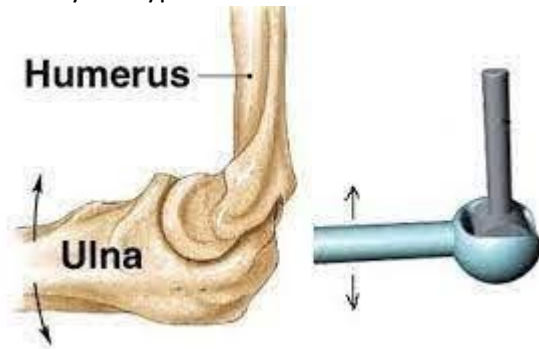
6 Which of the following are professionals involved with 'Children with Special Needs'.

- (i) Physical Educationist
- (ii) Special Educator
- (iii) Speech Therapist
- (iv) Physiotherapist

Options:

- (a) only (i) (ii) & (iii)
- (b) only (ii), (iii) & (iv)
- (c) only (i), (ii) & (iv)
- (d) (i), (ii), (iii) & (iv)

7 Identify the type of Joint.



- (a) Ball & Socket Joint
- (b) Hinge Joint
- (c) Saddle Joint
- (d) Pivot Joint

8 _____ an instrument or activity used to accumulate data on a person's ability to perform a task.

- (a) Measurement
- (b) Test
- (c) Evaluation
- (d) None of these

9 What does WADA stand for?

- (a) World Anti-doping Association
- (b) World Anti-drugs Association
- (c) World Anti-doping Agency
- (d) World Anti-drug Agency

- 10 Trataka is used to improve which body part?
- (a) Brain (b) Eyes (c) Heart (d) Lungs
- 11 Muscles under voluntary control are called as _____ muscles.
- (a) Smooth (b) Cardiac (c) Skeletal (d) None of these
- 12 Pranayam refers to:
- (a) Posture (b) Concentration (c) Breath control (d) State of Meditation
- 13 There are two statements marked as Assertion (A) and Reason (R). Read the statements and choose the appropriate option from the options given below:

Assertion (A): Arteries are the vessels that carry oxygenated blood away from the heart.

Reason (R): Human Heart has four chambers

- (a) Both (A) and (R) are true and (R) is the correct explanation of (A)
 (b) Both (A) and (R) are true but (R) is NOT the correct explanation of (A)
 (c) (A) is true, but (R) is false
 (d) (A) is false, but (R) is true

- 14 Match the following:

List I

- (A) Flexibility
 (B) Cardiovascular Endurance
 (C) Strength
 (D) Speed

List II

- (i) 50 metr dash.
 (ii) Push up Test
 (iii) Harvard Step Test
 (iv) Sit and Reach Test

Options:

- (a) (A)-(iii), (B)-(iv), (C)-(i), (D)-(ii) (b) (A)-(i), (B)-(ii), (C)-(iii), (D)-(iv)

(c) (A)-(ii), (B)-(iii), (C)-(i), (D)-(iv)

(d) (A)-(iv), (B)-(iii), (C)-(ii), (D)-(i)

15 When was the first Modern Olympics Games held?

(a) 1892

(b) 1894

(c) 1896

(d) 1898

16 Cerebral Palsy is a type?

(a) Disability

(b) Substance

(c) Disorder

(d) Narcotics

17 Which career related to Physical Education is shown in the picture below:



(a) Sports Broadcasting

(b) Sports Commentator

(c) Media

(d) All of these

18 _____ was introduced to revive the sporting culture in India at the grassroots level.

(a) Khelo India Programme

(b) Fit India Programme

(c) Indian Olympic Association

(d) Indian Youth Sports

SECTION - B

19 Explain Sports Training.

(2)

20 Give two importance of psychology in sports

(0.5x4)

- 21 Define Anatomy & Exercise Physiology (1x2)
- 22 Define Kinesiology & Biomechanics. (1x2)
- 23 Define Measurement and Evaluation in Physical Education. (1x2)
- 24 Define traditional Sports? Give two examples. (1+0.5x2))

SECTION – C

- 25 What are the different career options in Physical Education? (3)
- 26 Explain the different Olympic Symbols. (1x3)
- 27 What is the meaning of Yoga? Explain about any two importance of Yoga. (1+1x2)
- 28 What is Adaptive Physical Education? Explain any two objectives of Adaptive Physical Education. (1x3)
- 29 Explain management of any three adolescent problems? (1x3)
- 30 Explain about the different planes and axis and its application in movements. (1x3)

SECTION – D

- 31 Explain any four components of Physical Fitness. (1x4)
- 32 Explain any four causes of disability. (1x4)
- 33 Explain any four parts of Ashtanga Yoga. (1x4)

SECTION – E

- 34 Explain any five importance of Test, Measurement and Evaluation (1x5)
- 35 What is Physical Education? Explain any four objectives of Physical Education. (1+4)
- 36 Explain any five principles of Sports Training. (1x5)
- 37 Explain the function and structure of Respiratory System. (5)
-

SAMPLE QUESTION PAPER: BIOLOGY CLASS 11

FINAL TERM EXAMINATION 2025-26

Time: 3 Hours

Maximum Marks: 70

General Instructions:

1. All questions are compulsory.
2. The question paper consists of 33 questions divided into Sections A, B, C, D and E.
3. Use neat and labelled diagrams wherever necessary.
4. Internal choices are provided as per the question paper.

Section A

Q1–Q12 are Multiple Choice Questions.

Q1. The correct hierarchy of taxonomic categories is:

- (a) Species → Genus → Family → Order
- (b) Genus → Species → Order → Family
- (c) Family → Order → Genus → Species
- (d) Species → Family → Genus → Order

Q2. Which domain includes unicellular prokaryotes without nuclear membrane?

- (a) Eukarya
- (b) Archaea
- (c) Protista
- (d) Fungi

Q3. Lichens show symbiosis between:

- (a) Bacteria and fungi
- (b) Algae and fungi
- (c) Virus and bacteria
- (d) Algae and bryophytes

Q4. Which group of plants is known as amphibians of plant kingdom?

- (a) Algae
- (b) Bryophyta
- (c) Pteridophyta
- (d) Gymnosperms

Q5. Presence of jointed appendages is a characteristic of:

- (a) Annelida
- (b) Arthropoda
- (c) Mollusca
- (d) Echinodermata

Q6. The meristem responsible for increase in length of root is:

- (a) Lateral meristem
- (b) Intercalary meristem
- (c) Apical meristem
- (d) Ground tissue

Q7. Which organ system in frog helps in gaseous exchange?

- (a) Digestive
- (b) Respiratory
- (c) Excretory
- (d) Circulatory

Q8. Ribosomes are mainly involved in:

- (a) Lipid synthesis
- (b) Protein synthesis
- (c) Respiration
- (d) Digestion

Q9. Which cell organelle is double membrane bound?

- (a) Ribosome
- (b) Lysosome
- (c) Mitochondria
- (d) Golgi apparatus

Q10. Middle lamella of plant cell wall is mainly made of:

- (a) Cellulose
- (b) Hemicellulose
- (c) Pectin
- (d) Lignin

Q11. Which blood cells lack nucleus in humans?

- (a) RBC
- (b) WBC
- (c) Platelets
- (d) Lymphocytes

Q12. Trypsin is secreted by:

- (a) Stomach
- (b) Liver
- (c) Pancreas
- (d) Intestine

Assertion–Reason Questions (Q13–Q16)

Choose the correct option:

- (a) Both A and R are true and R is the correct explanation of A
- (b) Both A and R are true but R is not the correct explanation of A
- (c) A is true but R is false
- (d) A is false but R is true

Q13. Assertion: External intercostal muscles contract during inspiration.

Reason: This contraction increases thoracic cavity volume.

Q14. Assertion: Oxygen dissociation curve is sigmoid.

Reason: Cooperative binding of oxygen with haemoglobin causes this shape.

Q15. Assertion: Viruses are considered non-living outside host cells.
Reason: They lack cellular organisation and metabolic machinery.

Q16. Assertion: Lysosomes are called suicide bags of the cell.
Reason: They contain hydrolytic enzymes capable of intracellular digestion.

Section B

Q17. Define biodiversity. Mention any one of its levels.

Q18. **Attempt either option (a) or (b)**

a. What is binomial nomenclature? Name its components.

OR

b. State any two functions of roots.

Q19. **Attempt either option (a) or (b)**

a. Differentiate between prokaryotic and eukaryotic cells (any two points).

OR

b. What are meristems? Name any two types.

Q20. Write two differences between arteries and veins.

Q21. **Attempt either option (a) or (b)**

a. What is tissue? Name any two types of plant tissues and their function.

OR

b. Mention two functions of mitochondria.

Section C

Q22. Explain the need for classification of living organisms.

Q23. Describe the salient features of Kingdom Fungi.

Q24. Write the distinguishing features of Bryophytes.

Q25. Describe the structure of dicot stem.

Q26. Explain the digestive system of frog.

Q27. Describe the fluid mosaic model of plasma membrane.

Q28. Explain the structure and functions of nucleus.

Section D

Q29. A spirometric test was conducted on a healthy adult to assess lung function. The following respiratory volumes were recorded:

Tidal Volume (TV) = 500 mL

Inspiratory Reserve Volume (IRV) = 3000 mL

Expiratory Reserve Volume (ERV) = 1100 mL

Based on the above information, answer the following questions:

(a) Name the volume of air inspired or expired during normal breathing.

(b) Which respiratory volume helps in forceful inspiration after a normal inspiration?

(c) Write the formula for calculating Vital Capacity (VC).

Attempt either option (d) or (e)

(d) Which respiratory capacity indicates the maximum amount of air that can be expelled after a maximum inspiration?

OR

(e) Which respiratory capacity is the sum of tidal volume, inspiratory reserve volume, and expiratory reserve volume?

Q30. During a field visit, students observed mosses growing on damp walls, ferns in shady areas, pine trees on hills, and flowering plants in gardens. They noted differences in body organisation, presence of vascular tissues, and modes of reproduction among these plants.

Based on these observations, answer the following questions:

(a) To which group do mosses belong?

(b) Name the plant group represented by ferns.

(c) Which plant group is represented by pine trees?

Attempt either option (d) or (e)

(d) Identify the plant group to which flowering plants belong.

OR

(e) Which plant group among those observed requires water for fertilisation?

Section E

Q31. **Attempt either option a or b**

a. i) State the criteria used by R.H. Whittaker for five kingdom classification. (2)

ii) Name the five kingdoms proposed by him. (3)

OR

b. i) What are taxonomical aids? (2)

ii) Explain any three taxonomical aids. (3)

Q32. **Attempt either option a or b**

a. i) Define flower. (1)

ii) Describe any four main parts of a typical flower and their role. (4)

OR

b. i) What is a dicot root? (1)

ii) Explain the internal structure of dicot root with labelled diagram. (4)

Q33. **Attempt either option a or b**

- a. i) Draw a neat labelled diagram of mitochondria. (2)
- ii) Write any three functions of mitochondria. (3)

OR

- b. i) What is endomembrane system? Name the organelles included in it. (2)
- ii) Explain any three functions of endomembrane system. (3)


```
>>>print(len(L))
```

a) 9

b)7

c)8

d)6

19. Why are tuples called an ordered list of objects? [1]

20. **Assertion(A):**To find the element with highest frequency in a list, the statistics module must be imported. [1]

Reason (R):The mode() function requires a sequence of elements as input.

a) Both A and R are true and R is the correct explanation of A.

b) Both A and R are true but R is not the correct explanation of A.

c) A is true but R is false.

d)A is false but R is true.

21. **Assertion (A):**Every Boolean expression can be simplified using Boolean laws and theorems. [1]

Reason(R):Simplification of a Boolean expression reduces its complexity and improves its efficiency.

a) Both A and R are true and R is the correct explanation of A.

b) Both A and R are true but R is not the correct explanation of A.

c) A is true but R is false.

d)A is false but R is true.

Section B

22. Write Python expression for given mathematical expressions. [2]

i. $a + b/(x-y)^4$

ii. $(\cos x + \tan x)/4$

23. Give an example to iterate over (traversing) a dictionary through all keys value pair? [2]

24. Python program to calculate simple interest and display it. [2]

OR

Convert the for loop into while loop.

```
for x in range(8, 24, 4):
```

```
print(x)
```

25. What is the difference between key and values in a dictionary? [2]

26. Predict the output [2]

```
T1 = (10, 20, 30, 40, 50)
```

```
T2=(100,200,300) T3 =
```

```
T1 + T2
```

```
print (T3)
```

```
print (T2+T1)
```

27. Define the problem solving. [2]

OR

Draw a flowchart to find the sum of first 'n' odd numbers. Accept 'n' from the user.

28. Differentiate between for loop and while loop. [2]

OR

Convert the while loop into for loop.

```
num = 7
```

```
while num <21:
```

```
print(num * 2)
```

```
num += 3
```

Section C

29. Intellectual property right means that the person who produces the information is the only one who can use that information. [3]

Now, explain the need of protecting intellectual property right.

OR

List some advantages and disadvantages of social networking sites.

30. Define Logical Errors and Run time errors. [3]

OR

Write a program to find prime number from given range.

31. Write some characteristics of a module? [3]

OR

Explain the difference between `import<module>` and `from <module>import`.

Section D

32. Explain any two ways of violating intellectual Property Rights. [4]

33. Find the output. [4]

```
str = "Computer Science"
```

i. `str[2]`

ii. `str [-4]`

iii. `str[5:7]`

iv. `str[: 8]`

v. `str [: -2]`

vi. `str[-2 : - 6]`

*****PTO*****

34. **Read the text carefully and answer the questions:**

[4]

Memory is the electronic holding place for the instructions and data a computer needs to reach quickly. It's where information is stored for immediate use. Memory is one of the basic functions of a computer, because without it, a computer would not be able to function properly.

There are technically two types of computer memory: primary and secondary. The term memory is used as a synonym for primary memory or as an abbreviation for a specific type of primary memory called random access memory (RAM). This type of memory is located on microchips that are physically close to a computer's microprocessor.

(a) The Boot sector files of the system are stored in which computer memory?

- | | |
|-------------|----------|
| a) Register | b) Cache |
| c) RAM | d) ROM |

(b) Which memory acts as a buffer between CPU and main memory?

- | | |
|------------|----------|
| a) Storage | b) Cache |
| c) RAM | d) ROM |

(c) Which of the following is the smallest unit of data in a computer?

- | | |
|-----------|--------|
| a) Nibble | b) Bit |
| c) Byte | d) KB |

(d) Where does your PC store your programs when the power is off?

- | | |
|----------|--------------------|
| a) DRAM | b) Hard Disk Drive |
| c) Cache | d) ROM |

OR

What is the name of the storage device which is used to compensate for the difference in rates of flow of data from one device to another?

- | | |
|-----------------|-----------|
| a) Concentrator | b) Cache |
| c) I/O device | d) Buffer |

35. A list Divisibility contains the following elements:

[4]

9, 35, 4, 19, 55, 12, 55, 36

Write a program to swap the content with next value divisible by 5 so that the resultant list will look like 9, 4, 35, 19, 12, 55, 36, 55

Section E

36. Write a menu-driven program that performs the following operation on a list. A. Adds an item to the list. B. Removes an item from the list. C. Searches all item in the list. D. Counts and Displays the total number of items in the list.

37. **Read the text carefully and answer the questions:**

Digital property includes data, Internet accounts and other rights in the digital world, including contractual rights and intellectual property rights. Data are the files and information stored and used by computers (such as e-mails, word processing documents, spread sheets, pictures, audio files and movies).

This data may be stored locally on a computer's hard drive or on removable media or data may be stored remotely and accessed over the Internet.

•Co

- (a) When DPR dispute is arose?
- (b) Give the name any two social media pages.
- (c) Name the rights which are included by digital property rights.
- (d) What terms are included in digital property?
- (e) Write any two digital property rights.

ST. MICHAEL'S.SR.SEC. SCHOOL
Moral Science
MODEL-TEST PAPER 2025-26
Class XI

QUES 1: Short Answer Questions

(5 × 2 = 10 marks)

(Answer any five questions.)

1. What is meant by civic sense?
2. Mention any two problems faced by slum dwellers.
3. Why should we respect different cultures and religions?
4. State two benefits of practicing good manners.
5. What is peer pressure?
6. Write two harmful effects of smoking.

QUES 2: Fill in the Blanks

(5 × 1 = 5 marks)

1. Ignorance is the _____ of all social evils.
2. Children should be taught to respect the _____ of cultures and languages.
3. A person with good _____ follows rules and maintains discipline.
4. We should not allow a few people to _____ natural resources for selfish ends.
5. Our roads are dirty not because nobody cleaned them, but because somebody _____ it.

QUES 3: True or False

(5 × 1 = 5 marks)

1. Living conditions in slums are usually very poor.
2. Civic sense helps in maintaining peace and order in society.
3. Smoking has no harmful effects on health.
4. We should push in a queue if others are pushing.
5. Respecting other cultures means disrespecting our own culture.

QUES 4: Long Answer Questions

(2 × 2.5 = 5 marks)

(Answer any two questions.)

1. Explain the importance of civic sense in daily life.
2. How can students help in weeding out corruption from society?
3. Describe the role of good manners in building a healthy society.