

**ST. PBN PUBLIC SCHOOL**  
**SAMPLE PAPER**  
**CLASS – XI**  
**SUBJECT – ENGLISH**

**TIME- 3 HRS.**

**MM. 80**

**GENERAL INSTRUCTIONS:**

1. ALL QUESTIONS ARE COMPULSORY.
2. FOLLOW THE INSTRUCTIONS GIVEN WITH ALL QUESTIONS.

**SECTION A**  
**READING**

**(26 MARKS)**

**Q1. Read the passage given below.**

**10M**

1. Long years ago, sometimes it seems many lives ago, I was at Oxford listening to the radio program Desert Island Discs with my young son Alexander. It was a well-known program (for all I know it still continues) on which famous people from all walks of life were invited to talk about the eight discs, the one book beside the Bible and the complete works of Shakespeare, and the one luxury item they would wish to have with them were they to be marooned on a deserted island. At the end of the program, which we had both enjoyed, Alexander asked me if I thought I might ever be invited to speak on Desert Island Discs. “Why not?” I responded lightly. Since he knew that in general only celebrities took part in the program, he proceeded to ask, with genuine interest, for what reason I thought I might be invited. I considered this for a moment and then answered: “Perhaps because I’d have won the Nobel Prize for Literature,” and we both laughed.

The prospect seemed pleasant but hardly probable. (I cannot now remember why I gave that answer, perhaps because I had recently read a book by a Nobel Laureate or perhaps because the Desert Island celebrity of that day had been a famous writer.)

2. In 1989, when my late husband Michael Aris came to see me during my first term of house arrest, he told me that a friend, John Finnis, had nominated me for the Nobel Peace Prize. This time also I laughed. For an instant Michael looked amazed, then he realized why I was amused. The Nobel Peace Prize? A pleasant prospect, but quite improbable! So how did I feel when I was actually awarded the Nobel Prize for Peace? The question has been put to me many times and this is surely the most appropriate occasion on which to examine what the Nobel Prize means to me and what peace means to me.

3. As I have said repeatedly in many interviews, I heard the news that I had been awarded the Nobel Peace Prize on the radio one evening. It did not altogether come as a surprise because I had been mentioned as one of the front runners for the prize in a number of broadcasts during the previous week. While drafting this lecture, I have tried

very hard to remember what my immediate reaction to the announcement of the award had been. I think, I can no longer be sure, it was something like: “Oh, so they’ve decided to give it to me.” It did not seem quite real because in a sense I did not feel myself to be quite real at that time.

**On the basis of your understanding of the passage, answer ANY TEN questions from the eleven that follow. (1×10 = 10)**

1. Desert Island Discs was a:
  - a. Television program
  - b. Series of interviews of celebrities.
  - c. Radio program
  - d. Reading of the Bible.
2. The ‘eight discs’ probably refer to:
  - a. Flying discs or frisbees with which the marooned person can play on the island.
  - b. Musical tracks.
  - c. Eight plates for serving food.
  - d. Eight disc-like objects that the marooned person is fond of and would like to have on the island.
3. What prospect made the author and her son laugh?
  - a. The author could be invited to the Desert Island Discs show.
  - b. The author could be a famous writer.
  - c. The author could win the Nobel Prize for Literature.
  - d. The author could win the Nobel Peace Prize.iv.
4. Which two kinds of book could the guests on the show not take with them to the deserted island?
  - a. The Bible and their autobiography.
  - b. A play of Shakespeare and the Bible.
  - c. All works of Shakespeare and the Bible.
  - d. All works of Shakespeare and books by Nobel Laureates.
5. What is the question that has been put to the author many times?
  - a. Will she be invited to the Desert Island Discs show?
  - b. Will she be given the Nobel Prize for Literature?
  - c. Who nominated her for the Nobel Peace Prize?
  - d. How did she feel when she was awarded the Nobel Prize for Peace?
6. Why wasn’t the author surprised when she heard that she had been awarded the Nobel Peace Prize?

- a. She knew that she was one of the front runners for the prize.
- b. She was sure her nomination by John Finnis would get her the prize.
- c. She had heard a number of broadcasts during the previous week which predicted her win.
- d. She was under house arrest, and nothing affected her anymore.

7. How do we know that Desert Island Discs was a popular radio program?

- a. All celebrities used to come on the show.
- b. It was still running years later when the author was writing the lecture of which the passage is a part.
- c. The author and her son enjoyed it.
- d. Everyone found the idea of being marooned on an island improbable but pleasant.

8. What news did the author receive in 1989?

- a. She had been awarded the Nobel Peace Prize.
- b. Her late husband had come to meet her.
- c. She had been nominated for the Nobel Peace Prize.
- d. She would be placed under house arrest.

9. 'Marooned' in para 1 means:

- a. Disowned
- b. Isolated
- c. Socially well connected
- d. Made to live in a healthy environment

10. 'Genuine' in para 1 means:

- a. Unreal feelings
- b. Pretence
- c. Honestly felt
- d. Inspired

11. 'Appropriate' in para 2 means:

- a. Suitable
- b. Inapt
- c. Peaceful
- d. Unexpected

**Q2. Read the text carefully and answer the questions:**

**8M**

1. Millions of tons of small waste from plastic bags, bottles and clothes in the world's ocean present a serious threat to human health and marine environment. This is a

warning issued by the U.N. in a report on the most dangerous environmental problem facing the world today. Global plastic production has increased considerably in years nearly by 38%.

2. A poor waste management means when we have finished with our takeaways contains cigarette butts and party balloons, they are worn down into trillions of even small particles by the waves. Therefore, there is a growing presence of these micro plastic the world's oceans.

3. It was estimated in 2010 that millions of tons of plastic was washed into the season have since shown up in the stomachs of whales, plankton and other marine life. Richard Thompson, professor of marine biology said that in laboratory experiments the proof that micro plastic an cause harm to organisms.

4. More than a quarter of all fish now contained plastic, according to a recent study why analysed the guts of fish sold in California. Scientist fear that chemical sin plastician also chemicals which attach themselves to plastic in natural environment could each poisoning and many disorders in marine lie if consumed in huge quantities.

5. Even human could be adversely affected by the plastic. People could even be breathing in plastic micro-particles suspended in the air with the risk of harmful effect on the lungs similar to air fumes.

6. Volunteers around the world collect trash and tally up what they find on the fall in Ocean's Conservancy's Annual International Coastal Cleanup. The result item-by-item, location-by-location Ocean Trash Index provides the only snapshot of marine debris littering coasts and waterways around the world, according to Ocean Conservancy.

7. Boyance Slat, a Dutch student has developed a technology that could sift dangerous plastic particle out of the ocean and sell them for profit or re-cycling. Richard Thompson recommended that people avoid using products with micro beads and to make sure they dispose of all plastic products in a appropriate way by, if possible.



i. Select the option that is true for the two statements given below.

(1) More than a quarter of all fish now have plastics present in them.

(2) Millions of tons of plastic waste is present in the world's oceans.

1. (1) is the result of (2)

2. (1) is the reason for (2)

3. Both (1) and (2) are true

4. (1) contradicts (2)

ii. According to the passage, Richard Thompson is a \_\_\_\_\_.

iii. \_\_\_\_\_ provides the only snapshot of marine debris littering coasts and waterways.

iv. Through what does the cigarette butts and party balloons worn down into smaller particles?

v. We can find out that more than a quarter of all fish contained plastics in them by:

1. the stark warning issued by the UN in a report on the most dangerous environmental problems facing the world today.

2. collecting trash and tallying up what they find each day.

3. laboratory experiments performed by Richard Thompson a professional marine biologist.

4. analysing the fish sold in California.

vi. Choose the correct set of statement which is NOT TRUE.

(I) Plastic could have similar effects like car fumes.

(II) Chemicals which attach themselves to plastic in natural environment could cause poisoning in marine life.

(III) Humans will never be adversely affected by the plastic.

(IV) In 2001, Millions of tons of plastic was washed into the sea.

(V) There is a growing presence of micro plastics in the world's oceans.

1. (II), (V)

2. (I), (V)

3. (I), (II)

4. (III), (IV)

vii. What amount of paper bags in the index are diffused into the oceans?

viii. Fill in the blank with the correct option.

There are \_\_\_\_\_ beverage cans found in the index.

1.337,865

2.339,875

3.339,445

4.333,347

**Q3. Read the passage carefully.**

**8M**

1. Conversation is indeed the most easily teachable of all arts. All you need to do in order to become a good conversationalist is to find a subject that interests you and your listeners. There are, for example, numberless hobbies to talk about. But the important thing is that you must talk about other fellow's hobby rather than your own. Therein lies the secret of your popularity. Talk to your friends about the things that interest them, and you will get a reputation for good fellowship, charming wit, and a brilliant mind. There is nothing that pleases people so much as your interest in their interest.

2. It is just as important to know what subjects to avoid and what subjects to select for good conversation. If you don't want to be set down as a wet blanket or a bore, be careful to avoid certain unpleasant subjects. Avoid talking about yourself, unless you are asked to do so. People are interested in their own problems not in yours. Sickness or death bores everybody. The only one who willingly listens to such talk is the doctor, but he gets paid for it.

3. To be a good conversationalist you must know not only what to say, but how also to say it. Be mentally quick and witty. But don't hurt others with your wit. Finally try to avoid mannerism in your conversation. Don't bite your lips or click your tongue, or roll your eyes or use your hands excessively as you speak.

4. Don't be like that Frenchman who said, "How can I talk if you hold my hand?"

**3.1** Make notes on the contents of above paragraph, using abbreviations. Supply a suitable title also.

**5M**

**3.2** Make a summary of the passage.

**3M**

## SECTION – B GRAMMAR AND CREATIVE WRITING (23 MARKS)

Q.4 Fill in the blanks with correct form of the verb.

1. After Howard \_\_\_\_\_ his studies he intends to work in his father's company. (FINISH)
2. I \_\_\_\_\_ the instructions on the test sheet when the headmaster came in and wished all of us good luck. (READ)
3. By the time I finish my thesis I \_\_\_\_\_ on it for over three years. (WORK)
4. Ancient Greek athletes received a wreath of olives after they \_\_\_\_\_ a race. (win)

**Q5. Rearrange the following words or phrases to make meaningful sentences: 3M**

1. a/ lover/ is/ animal/ passionate/ he
2. campaigned/ birds/ he/ caged/ free/ to
3. to/ her/ first/ Sudha/ stand/ hard/ class/ is/ studying/ in

**Q6.** You are Ram/Rajani. Draft a classified advertisement, in not more than 50 words, to be published in India Times for the sale of a used motor car giving all the necessary details. You can be contacted at 12345679. 3M

OR

You are Vikram/Sonia, an Honours's graduate in history with specialization in Medieval India. You are well acquainted with places of historical interest in Delhi, Agra and Jaipur. You are looking for the job of tourist guide. Write an advertisement in about 50 words for the situations wanted column of a local newspaper. Your contact no. 999751234.

**Q7.** Design a poster on the topic "Say No To Plastics." 3M

OR

Design a poster on the topic "Save Water."

**Q8.** As Mukul / Mahima of Alps Public School, write a speech to be delivered in school assembly highlighting the importance of cleanliness suggesting that the state of cleanliness reflects the character of its citizens. (150-200 words) 5M

**OR**

You are Ali/Alia, Head girl / Head boy of your school. You are deeply disturbed by the rising cases of aggressive behaviour of students in your school. You decide to speak during the morning assembly about it. Write a speech on 'Indiscipline in Schools'. (150 – 200 words)

**Q9.** "Academic excellence is the only requirement for a successful career." Write a debate either for or against the motion. (120 – 150 words) 5M

**OR**

Social media (Facebook, Twitter, etc.) is being used to create disaffection in society.' Write a debate in 120-150 words either for or against the motion. (7marks)

### **SECTION C LITERATURE (31 MARKS)**

**Q10. Read the extract given below and answer any two of the questions that follow.**  
**3M**

When did my childhood go?  
Was it the time I realised that adults were not all they seemed to be,  
They talked of love and preached of love,  
But did not act so lovingly,  
Was that the day!

1. Who is 'my' in the above lines?
2. Why is 'I' confused?
3. Who talk of love and preach of love?

**Q11. Read the given passage and answer the questions that follow. (1x3=3M)**

He was just a teenager when he died. The last heir of a powerful family that had ruled Egypt and its empire for centuries, he was laid to rest laden with gold and eventually forgotten. Since the discovery of his tomb in 1922, the modern world has speculated about what happened to him, with murder being the most extreme possibility.

1. Who is the author of these lines ?
2. Who is 'he' in these lines ?
3. What has happened to 'he' recently?

**Q12. Read the given passage and answer the questions that follow. (1x4 = 4M)**

When the curtain rises it is an afternoon in early autumn and the stage can be well lit. Mrs Pearson at right, and Mrs Fitzgerald at left, are sitting opposite each other at the small table, on which are two teacups and saucers and the cards with which Mrs Fitzgerald has been telling Mrs Pearson's fortune. Mrs Pearson is a pleasant but worried-looking woman in her forties. Mrs Fitzgerald is older, heavier and a strong and sinister personality. She is smoking. It is very important that these two should have sharply contrasting voices.

1. What is the name of the play?
2. Where is the scene set ?
3. How are Mrs. Pearson and Mrs. Fitzgerald related?
4. What was the contrast between the voices of the two ladies?

**Q13. Answer the following questions in 40-50words. (ANY TWO) 3x2=6M**

1. Mention how the sparrows expressed their sorrow when the author's grandmother died.
2. What was the narrator's experience when she entered the house?
3. Explain the statement, "King Tut is one of the first mummies to be scanned — in death, as in life ..."

**Q14. Answer any one of the following questions in 40-50words. 3x1=3M**

1. What was Mr Pearson called behind his back in the club? Why was he called so?
2. What efforts did Andrew make to revive Susan Morgan? (Birth)

**Q15. Answer any one of the following question (ANY ONE) in about 100-120 words. (6x1=6M)**

How did the narrator and his companions save the boat from sinking?

**OR**

Write the character sketch of the grandmother.

**Q16. Answer any one of the following question (ANY ONE) in about 100-120 words. (6x1=6M)**

Compare and contrast the characters of Mrs Fitzgerald and Mrs Pearson. Who do you admire and why? (Mother's Day)

**OR**

How did the narrator come to know about Mrs Dorling and the address where she lived?

# St. PBN Public School

## Annual Examination

Class: XI

PHYSICS

Sample Paper

Maximum Marks: 70 Marks

Time Allowed: 3 hours.

### General Instructions:

- (1) There are 35 questions in all. All questions are compulsory
- (2) This question paper has five sections: Section A, Section B, Section C, Section D and Section E. All the sections are compulsory.
- (3) Section A contains eighteen MCQ of 1 mark each, Section B contains seven questions of two marks each, Section C contains five questions of three marks each, section D contains three long questions of five marks each and Section E contains two case study-based questions of 4 marks each.
- (4) There is no overall choice. However, an internal choice has been provided in section B, C, D and E. You have to attempt only one of the choices in such questions.
5. Use of calculators is not allowed.

### SECTION A

Q. N O.		MARKS
1	If force ( $F$ ), length ( $L$ ) and time ( $T$ ) are assumed to be fundamental units, then the dimensional formula of the mass will be (a) $FL^{-1}T^2$ (b) $FL^{-1}T^{-2}$ (c) $FL^{-1}T^{-1}$ (d) $FL^2T^2$	1
2	Two balls are dropped from heights $h$ and $3h$ respectively from the earth surface. The ratio of time of these balls to reach the earth is (a) $1:\sqrt{3}$ (b) $\sqrt{3}:1$ (c) $3:1$ (d) $1:3$	1
3	The angle between vectors $\vec{A} = 10\hat{i} + 10\hat{j} - 5\hat{k}$ and $\vec{B} = 10\hat{i} - 5\hat{j} + 10\hat{k}$ is: (a) $30^\circ$ (b) $45^\circ$ (c) $60^\circ$ (d) $90^\circ$	

4	<p>The momentum of a system is conserved</p> <p>(a) Always</p> <p>(b) Never</p> <p>(c) In the absence of an external force on the system</p> <p>(d) None of the above</p>	1
5	<p>If a long spring is stretched by <math>0.02\text{ m}</math>, its potential energy is <math>U</math>. If the spring is stretched by <math>0.1\text{ m}</math>, then its potential energy will be</p> <p>(a) <math>\frac{U}{5}</math> (b) <math>U</math></p> <p>(c) <math>5U</math> (d) <math>25U</math></p>	1
6	<p>If radius of earth is <math>R</math> then the height '<math>h</math>' at which value of '<math>g</math>' becomes one-fourth is</p> <p>(a) <math>\frac{R}{4}</math> (b) <math>\frac{3R}{4}</math></p> <p>(c) <math>R</math> (d) <math>\frac{R}{8}</math></p>	1
7.	<p>Two wires of copper having the length in the ratio <math>4 : 1</math> and their radii ratio as <math>1 : 4</math> are stretched by the same force. The ratio of longitudinal strain in the two will be</p> <p>(a) <math>1 : 16</math> (b) <math>16 : 1</math></p> <p>(c) <math>1 : 64</math> (d) <math>64 : 1</math></p>	1
8.	<p>The surface tension of a liquid at its boiling point</p> <p>(a) Becomes zero</p> <p>(b) Becomes infinity</p> <p>(c) is equal to the value at room temperature</p> <p>(d) is half to the value at the room temperature</p>	1
9.	<p>Water has maximum density at</p> <p>(a) <math>0^{\circ}\text{C}</math> (b) <math>32^{\circ}\text{F}</math></p> <p>(c) <math>-4^{\circ}\text{C}</math> (d) <math>4^{\circ}\text{C}</math></p>	1
10.	<p>The coefficient of superficial expansion of a solid is <math>2 \times 10^{-5} / ^{\circ}\text{C}</math>. It's coefficient of linear expansion is</p> <p>(a) <math>4 \times 10^{-5} / ^{\circ}\text{C}</math> (b) <math>3 \times 10^{-5} / ^{\circ}\text{C}</math></p> <p>(c) <math>2 \times 10^{-5} / ^{\circ}\text{C}</math> (d) <math>1 \times 10^{-5} / ^{\circ}\text{C}</math></p>	1

11.	A cycle tyre bursts suddenly. This represents an (a) Isothermal process      (b) Isobaric process (c) Isochoric process      (d) Adiabatic process	1
12.	Which is incorrect (a) In an isobaric process, $\Delta p = 0$ (b) In an isochoric process, $\Delta W = 0$ (c) In an isothermal process, $\Delta T = 0$ (d) In an isothermal process, $\Delta Q = 0$	1
13.	The temperature at which the root mean square velocity of a molecule will be doubled than at $100^{\circ}\text{C}$ (a) $1219^{\circ}\text{C}$ (b) $1492^{\circ}\text{K}$ (c) $400^{\circ}\text{C}$ (d) $400\text{ K}$	1
14.	The amplitude of a particle executing S.H.M. with frequency of $60\text{ Hz}$ is $0.01\text{ m}$ . The maximum value of the acceleration of the particle is (a) $144\pi^2\text{m/sec}^2$ (b) $144\text{m/sec}^2$ (c) $\frac{144}{\pi^2}\text{m/sec}^2$ (d) $288\pi^2\text{m/sec}^2$	1
15.	The equation of a sound wave is $y = 0.0015 \sin(62.8x + 316t)$ The wavelength of this wave is (a) $0.2\text{ unit}$ (b) $0.1\text{ unit}$ (c) $0.3\text{ unit}$ (d) Cannot be calculated	1
16.	<b>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.</b> <b>a) Both A and R are true and R is the correct explanation of A</b> <b>b) Both A and R are true and R is NOT the correct explanation of A</b> <b>c) A is true but R is false</b> <b>d) A is false and R is also false</b> <b>ASSERTION:</b> A player lowers his hands while catching a cricket ball and suffers less reaction force <b>REASON:</b> For the given momentum of the ball the reaction force inversely proportional to duration of catching time.	1

17.	<p><b>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.</b></p> <p><b>a) Both A and R are true and R is the correct explanation of A</b>  <b>b) Both A and R are true and R is NOT the correct explanation of A</b>  <b>c) A is true but R is false</b>  <b>d) A is false and R is also false</b></p> <p><b>ASSERTION:</b>  The torque of a given force is maximum when the angle between force and position vector of the point where force is acting is <math>90^\circ</math>.</p> <p><b>REASON:</b>  Torque and force both are the vector quantity.</p>	1
18.	<p><b>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.</b></p> <p><b>a) Both A and R are true and R is the correct explanation of A</b>  <b>b) Both A and R are true and R is NOT the correct explanation of A</b>  <b>c) A is true but R is false</b>  <b>d) A is false and R is also false</b></p> <p><b>ASSERTION:</b>  A beaker is completely filled with water at <math>4^\circ\text{C}</math>. It will overflow, both when heated or cooled.</p> <p><b>REASON:</b>  There is expansion of water below and above <math>4^\circ\text{C}</math>.</p>	1

## SECTION B

19.	<p>The position of a particle is given by <math>\vec{s}(t) = 5t\hat{i} + 6t^2\hat{j} - 10t\hat{k}</math>. Where t is in seconds. Find the velocity <math>\vec{v}(t)</math> and acceleration <math>\vec{a}(t)</math> of the particle at (i) <math>t = 1\text{s}</math>. (ii) <math>t = 3\text{s}</math>.</p>	2
20.	<p>The sum and difference of two vectors are equal in magnitude. Show that they are mutually perpendicular to each other.</p> <p style="text-align: center;">Or</p> <p>Find the angle of projection in projectile motion for which horizontal range and maximum height are equal.</p>	2
21.	<p>State the number of significant figures of following-</p> <p>(i) 0.07m (ii) 2.604km (iii) 3.9040N (iv) <math>2.06 \times 10^{-9}\text{s}</math></p>	2
22.	<p>A particle performs uniform circular motion with an angular momentum L. If the frequency of particle's motion is doubled and its K.E is halved, what happens to the angular momentum?</p>	2

23.	Find expression of work done in an isothermal process in terms of initial and final volume.	2
24.	Draw a typical stress strain curve for a ductile metal and mark the points which refer to proportional limit, Elastic limit and fracture point.	2
25.	Write Newton's formula for the speed of sound in air. Explain how is it corrected by Laplace.	2

### SECTION C

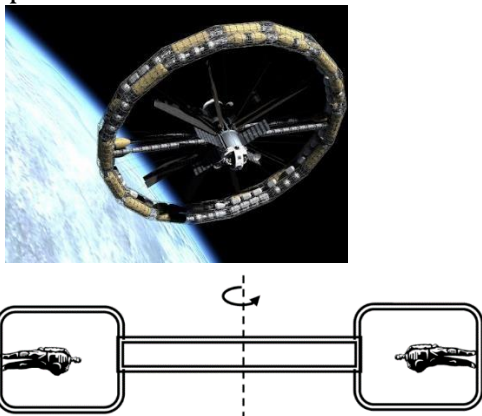
26.	State the principle of superposition of waves. Show that only odd harmonics can be produced in air column with one end closed and other open.	3
27.	Find the expression of the time period T of a pendulum for small amplitude of effective length 'l' and mass of the bob 'm', acceleration due to gravity 'g'.	3
28.	Define Degree of freedom. If degree of freedom 'f', $\gamma$ is the ratio of $C_p, C_v$ . Show that $\gamma = 1 + \frac{2}{f}$ <p style="text-align: center;">OR</p> Show that the average kinetic energy per molecule is directly proportional to the absolute temperature of the gas.	3
29.	Define Torque and Angular momentum. Obtain relation between them.	3
30.	If the frequency of a stretched string depends upon length of string (l), tension in the string (T) and mass per unit length ( $\mu$ ) of the string. Find expression for frequency of vibration of string using method of dimensions.	3

### SECTION D

31.	<p>(i) Draw velocity – time graph for uniformly accelerated motion. Obtain the three equations of motion graphically.</p> <p>(ii) A ball is thrown vertically upwards with a velocity of 20 m/s from the top of a building. The height of the point from where the ball is thrown is 25 m from the ground.</p> <p>(a) How high will the ball rise? and</p> <p>(b) how long time will it takes before the ball hits the ground? (<math>g = 10 \text{ m/s}^2</math>)</p> <p style="text-align: center;">OR</p> <p>(i) Define limiting friction and angle of friction.</p> <p>(ii) A body of mass 5 kg is sliding on a surface inclined at an angle <math>60^\circ</math> with the horizontal. Calculate the acceleration of the body and angle of friction. The coefficient of kinetic friction between the body and the surface is 0.5 and <math>g = 10 \text{ ms}^{-2}</math></p>	5
32.	<p>What is perfectly elastic collision? Obtain an expression for the final velocities for the bodies undergoing elastic collision in one dimension. Also prove that if the masses are equal after collision the velocities get interchanged.</p> <p style="text-align: center;">OR</p> <p>(i) State and prove Work-Energy Theorem?</p>	5

	(ii) If the momentum of a body increases by 10%, find how much percent its kinetic energy will increase?	
33.	<p>(i) State Stoke's law for the viscous drag experienced by the spherical body falling through a viscous liquid.</p> <p>(ii) Why does a spherical body achieve terminal speed?</p> <p>(iii) On what factors does the terminal speed of a spherical body falling in a viscous medium depend?</p> <p>(iv) Give one example each of motion around us with (a) Positive (b) Negative terminal velocity.</p> <p style="text-align: center;">OR</p> <p>(A) State and prove Bernoulli's theorem with the help of a neat and labeled diagram.</p> <p>(B) It is advised not to stand near the edge of platform when the fast-moving train is approaching. Give reason</p>	5

### SECTION E

34.	<p><b>Case Study:</b>  <b>Read the following paragraph and answer the questions.</b>          In the movie "2001: A Space Odyssey", a rotating spacecraft provides artificial gravity. The people would be walking inside the circle; their feet toward the exterior and their head toward the centre; the floor and ceiling would curve upwards. The radius of the outer rim of the space 'wheel' is 1.0 km.</p>  <p>(i) What is the value of artificial acceleration at the center of the aircraft ?</p> <p>(ii) Calculate the angular velocity for the spacecraft to generate an artificial acceleration due to gravity equals to <math>10 \text{ m/s}^2</math>.</p> <p>(iii) What is its equivalent no. of revolutions per min?</p> <p style="text-align: center;">OR</p> <p>(iii) calculate the tangential speed of the wheel of this space craft?</p>	4
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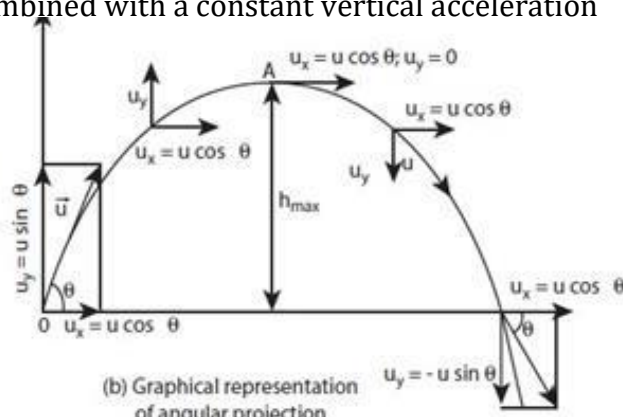
35.

**Case Study:****Read the following paragraph and answer the questions.**

Projectile Motion, by definition, is the motion of an object thrown or projected into the air, only subject to acceleration due to gravity. The motion has a constant horizontal velocity combined with a constant vertical acceleration



(a) Water is ejected out of a pipe held obliquely



(i) At what point the velocity of projectile will be minimum during its projectile motion?

(ii) What is the trajectory of projectile in angular projection?

(iii) Show that the horizontal range will be same for angle of projection  $\theta$  and  $(90^\circ - \theta)$

OR

(iii) Show that the horizontal range will be same for pair of angles of projection  $(45^\circ + \theta)$  and  $(45^\circ - \theta)$

4

**ST. PBN PUBLIC SCHOOL**  
**ANNUAL EXAMINATION**  
**CLASS-XI**  
**CHEMISTRY**  
**SAMPLEPAPER**

**TIME: 3 HRS.**

**M.M.: 70**

**General Instructions:**

1. a) There are 35 questions in this question paper with internal choice.
2. b) SECTION A consists of 18 multiple-choice questions carrying 1 mark each.
3. c) SECTION B consists of 7 very short answer questions carrying 2 marks each.
4. d) SECTION C consists of 5 short answer questions carrying 3 marks each.
5. e) SECTION D consists of 2 case- based questions carrying 4 marks each.
6. f) SECTION E consists of 3 long answer questions carrying 5 marks each.
7. g) All questions are compulsory.

**SECTION-A**

1. Which of the following terms are unitless?  
(a) Molarity                      (b) Mole fraction                      (c) Mass per cent                      (d) Molality
2. Number of radial nodes for 5d- orbitals is...  
(a) 1                      (b) 3                      (c) 4                      (d) 2
3. The number of orbitals in the fourth energy level is  
(a) 4                      (b) 16                      (c) 32                      (d) 9
4. The element with atomic number 35 belongs to  
(a) d- block                      (b) f- block                      (c) p- block                      (d) s- block
5. Which of the following elements is the most metallic ?  
(a) Boron                      (b) Silicon                      (c) Carbon                      (d) Aluminium
6. Which of the following pairs represents isobars?  
(a)  ${}^3\text{He}_2$  and  ${}^4\text{He}_2$                       (b)  ${}^{24}\text{Mg}_{12}$  and  ${}^{25}\text{Mg}_{12}$                       (c)  ${}^{40}\text{K}_{19}$  and  ${}^{40}\text{Ca}_{20}$                       (d)  ${}^{40}\text{K}_{19}$  and  ${}^{39}\text{K}_{19}$
7. The shape of  $\text{XeF}_4$  molecule is  
(a) trigonal bipyramidal                      (b) square planar                      (c) tetrahedral                      (d) See-saw
8. The amount of heat produced in the combustion of a one gram of a fuel is called  
(a) Calorific value                      (b) Enthalpy                      (c) Entropy                      (d) Gibb's energy
9. Human body is an example of .....  
(a) Open system                      (b) Close system                      (c) Both A and B                      (d) None of them
10. Which of the following property is not an intensive property  
(a) Temperature                      (b) density                      (c) internal energy                      (d) viscosity

11. Hess's Law deals with

- (a) Heat change in a chemical reaction
- (b) influence of pressure on the volume of gas
- (c) Equilibrium constant
- (d) Rate of reaction

12. The effect of pressure on solubility of a gas in liquids is given by

- (a) Henry's Law
- (b) Law of mass action
- (c) Le Chatelier's Principle
- (d) Reaction quotient

### Assertion and Reason Type Questions

In the following questions a statement of Assertion (A) followed by a statement of Reason (R) is given. Choose the correct option out of the choices given below each question..

- (a) Both A and R are true and R is the correct explanation of A.
- (b) A is true but R is false
- (c) A is false but R is true
- (d) Both A and R are false.

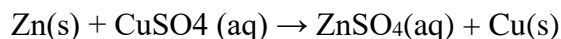
13 **Assertion :** The bond order of helium is always zero.

**Reason :** The number of electrons in bonding molecular orbital and antibonding molecular orbital is equal.

14 **Assertion :** The sum of  $q + w$  is a state function.

**Reason :** Work and heat are state functions.

15 **Assertion:** In a reaction



Zn is a reductant but itself gets oxidized.

**Reason:** In a redox reaction, oxidant is reduced by accepting electrons and reductant is oxidized by losing electrons.

16 **Assertion :** Second ionization enthalpy will be higher than the first ionization enthalpy.

**Reason :** Ionization enthalpy is a quantitative measure of the tendency of an element to lose electron.

### SECTION –B

17 Account for the following -

- i)  $\text{NF}_3$  is pyramidal while  $\text{BF}_3$  is triangular planar
- ii) Bond angle in  $\text{H}_2\text{O}$  is larger than bond angle in  $\text{H}_2\text{S}$ .

18 What is the difference between homogeneous and heterogeneous mixture ?

19 Use the periodic table to answer the following questions

- a) Identify an element with five electrons in the outer sub-shell
- b) Identify the element that would tend to lose two electrons.

20 What is the first law of thermodynamics?

21 Write two main differences between oxidation number and valency.

## SECTION C

- 22 How many  $\sigma$  and  $\pi$  bonds are present in the following molecules  
(i)  $\text{HC}\equiv\text{CCH}=\text{CHCH}_3$   
(ii)  $\text{CH}_2=\text{C}=\text{CHCH}_3$   
(iii)  $\text{CH}_2=\text{CH}-\text{CH}_2-\text{CN}$
- 23 Write IUPAC names of the following compounds :  
(i)  $(\text{CH}_3)_3\text{CCH}_2\text{C}(\text{CH}_3)_3$   
(ii)  $(\text{CH}_3)_2\text{C}(\text{C}_2\text{H}_5)_2$   
(iii)  $\text{CH}_3\text{CH}=\text{C}(\text{CH}_3)_2$
- 24 How can you predict the following stages of a reaction by comparing the value of  $K_c$  and  $Q_c$ ?  
(i) Net reaction proceeds in the forward direction.  
(ii) Net reaction proceeds in the backward direction.  
(iii) No net reaction occurs.
- 25 What do you understand by isoelectronic species? Which of the following pairs of elements would have a more negative electron gain enthalpy? Explain.  
(i) O or F  
(ii) F or Cl
- 26 Draw molecular orbital diagram of  $\text{N}_2$  molecule.
- 27 Why is  $sp$  hybrid orbital more electronegative than  $sp^2$  or  $sp^3$  hybridized orbitals?
- 28 Define Benzenoid aromatic and Non-benzenoid aromatic compounds with two examples of each.

## SECTION D

**29** The orbital wave function or  $\psi$  for an electron in an atom has no physical meaning. It is simply a mathematical function of the coordinates of the electron. However, for different orbitals the plots of corresponding wave functions as a function of  $r$  (the distance from the nucleus) are different. According to the German physicist, Max Born, the square of the wave function (i.e.,  $\psi^2$ ) at a point gives the probability density of the electron at that point.

The filling of electrons into the orbitals of different atoms takes place according to the aufbau principle which is based on the Pauli's exclusion principle, the Hund's rule of maximum multiplicity and the relative energies of the orbitals.

- 1) Explain the term Degenerate
- 2) State Hund's Rule of Maximum Multiplicity.
- 3) State and explain aufbau principle

4) Write Electronic Configuration of the following Elements-boron, nitrogen

**OR**

4) Write Electronic Configuration of the following Elements-  
oxygen, fluorine

30. Thermodynamics is a branch of chemistry that deals with the study of energy transformations in chemical and physical processes. It is concerned with the interrelation of heat and work with chemical reactions or physical changes in a system. One of the key concepts in thermodynamics is the notion of internal energy, which is the sum of the kinetic and potential energies of the particles within a system. It establishes the principle of energy conservation and the concept of heat transfer as a form of energy flow. The second law of thermodynamics deals with the direction of energy flow and states that in natural processes, the total entropy of a system and its surroundings always increases. Entropy is a measure of the disorder or randomness in a system, and this law provides insights into the irreversibility of certain processes.

1) Define isolated system.

2) What is first law of thermodynamics ?

3) Differentiate between extensive properties and intensive properties.

**SECTION-E**

**(3×5=15)**

31. Yellow light emitted from a sodium lamp has a wavelength of 580 nm. Calculate the frequency and wave number of the yellow light.

**Or**

Find energy of each of the photons which

(i) correspond to light of frequency  $3 \times 10^{15}$  Hz.

(ii) have wavelength of  $0.50 \text{ \AA}$ .

Write structures and IUPAC names of different structural isomers of alkenes corresponding to  $C_5H_{10}$ .

32. Write complete bond line structural formulae for the following compounds.

(i)  $(CH_3)_2 C=CH C_2H_5$

(ii)  $CH_3 (CH_2)_4 CH_3$

(iii)  $CH(CH=CH)_2 CH_3$

(iv) Cyclohexene

(iv)  $(CH_3)_2 CH(CH_2)_3 CHO$

**OR**

Write structural formulas of the following compounds:-

i) 3-chloroprop-1-ene

ii) Butane-1,2,3-triol

iii) Propane-1,2,3-triol

iv) 3-ethyl-5-methylheptane

v) 3,3-Dimethylpentane

33. i) What is  $K_c$  for the following equilibrium when the equilibrium concentration of each substance is:  $[SO_2] = 0.60M$ ,  $[O_2] = 0.82M$  and  $[SO_3] = 1.90M$ ?

ii) Explain Arrhenius concept of acids and bases with suitable example.

**ST. PBN PUBLIC SCHOOL**  
**ANNUAL EXAMINATION**  
**CLASS - XI**  
**MATHEMATICS**  
**SAMPLE PAPER**

**TIME: 3 Hours**

**MM: 80**

**NAME: \_\_\_\_\_ DATE: \_\_\_\_\_**

**General instructions:**

- All questions are compulsory.
- Section A consists of 20 questions of 1 mark each.
- Section B consists of 5 questions of 2 marks each.
- Section C consists of 6 questions of 3 marks each.
- Section D consists of 4 questions of 5 marks each.
- Section E has 3 source based/case based/passage based of assessment of 4 marks each with sub parts.
- Use of calculator is not allowed.

**Section A**

1. For two sets  $A \cup B = A$  iff

- |                     |                       |
|---------------------|-----------------------|
| (i) $B \subseteq A$ | (iii) $A \subseteq B$ |
| (ii) $A \neq B$     | (iv) $A = B$          |

2. The number of subsets of a set containing  $n$  elements is

- |            |                |
|------------|----------------|
| (i) $n$    | (iii) $2^n$    |
| (ii) $n^2$ | (iv) $2^n - 1$ |

3. The range of the function  $f(x) = \frac{x}{|x|}$  is

- |                               |                    |
|-------------------------------|--------------------|
| (i) $\mathbb{R} - \{0\}$      | (iii) $\{-1, 1\}$  |
| (ii) $\mathbb{R} - \{-1, 1\}$ | (iv) none of these |

4. Which of the following is incorrect?

- |                                  |                                   |
|----------------------------------|-----------------------------------|
| (i) $\sin \theta = -\frac{1}{5}$ | (iii) $\sec \theta = \frac{1}{2}$ |
| (ii) $\cos \theta = 1$           | (iv) $\tan \theta = 20$           |

5. The value of  $\tan \theta \sin\left(\frac{\pi}{2} + \theta\right) \cos\left(\frac{\pi}{2} - \theta\right)$  is

- |         |                                  |
|---------|----------------------------------|
| (i) 1   | (iii) $\frac{1}{2} \sin 2\theta$ |
| (ii) -1 | (iv) none of these               |

6. The value of  $(1 + i)(1 + i^2)(1 + i^3)(1 + i^4)$  is

- |        |                    |
|--------|--------------------|
| (i) 2  | (iii) 1            |
| (ii) 0 | (iv) none of these |

7. If  $\frac{3+2i\sin\theta}{1-2i\sin\theta}$  is a real number and  $0 < \theta < 2\pi$ , then  $\theta =$
- (i)  $\frac{\pi}{6}$  (iii)  $\frac{\pi}{2}$   
(ii)  $\frac{\pi}{3}$  (iv)  $\pi$
8. If  $x$  is a real number and  $|x| < 5$  then
- (i)  $x \geq 5$  (iii)  $-5 < x < 5$   
(ii)  $x \leq -5$  (iv)  $-5 \leq x \leq 5$
9. The number of words from the letter of the word 'BHARAT' in which B and H will never come together is
- (i) 360 (iii) 120  
(ii) 240 (iv) none of these
10. In how many ways can a committee of 5 be made out of 6 men and 4 women containing at least one woman?
- (i) 246 (iii) 186  
(ii) 222 (iv) none of these
11. The term without  $x$  in the expansion of  $(2x - \frac{1}{2x^2})^{12}$  is
- (i) 495 (iii) -7920  
(ii) -495 (iv) 7920
12. If 7<sup>th</sup> and 13<sup>th</sup> term of an A.P. be 34 and 64 respectively, then its 18<sup>th</sup> term is
- (i) 87 (iii) 89  
(ii) 88 (iv) 90
13. If second term of a G.P. is 2 and the sum of its infinite terms is 8, then its first term is
- (i)  $\frac{1}{4}$  (iii) 2  
(ii)  $\frac{1}{2}$  (iv) 4
14. The line segment joining the points (-3, -4) and (1, -2) is divided by y-axis in the ratio
- (i) 1:3 (iii) 3:1  
(ii) 2:3 (iv) 3:2
15. The angle between the lines  $2x-y+3=0$  and  $x+2y+3=0$  is
- (i)  $90^\circ$  (iii)  $45^\circ$   
(ii)  $60^\circ$  (iv)  $30^\circ$
16. The eccentricity of the ellipse  $4x^2+9y^2=36$  is
- (i)  $\frac{1}{2\sqrt{3}}$  (iii)  $\frac{1}{\sqrt{3}}$   
(ii)  $\frac{\sqrt{5}}{3}$  (iv)  $\frac{\sqrt{5}}{6}$
17.  $\lim_{x \rightarrow a} \frac{x^n - a^n}{x - a}$  is equal to
- (i)  $na$  (iii)  $na^n$   
(ii) 1 (iv)  $na^{n-1}$

18. The mean deviation of the numbers 3, 4, 5, 6, 7 from the mean is
- |        |           |
|--------|-----------|
| (i) 25 | (iii) 1.2 |
| (ii) 5 | (iv) 0    |
19. Two dice are thrown simultaneously. The probability of obtaining total score of seven is
- |             |              |
|-------------|--------------|
| (i) $5/36$  | (iii) $8/36$ |
| (ii) $6/36$ | (iv) $7/36$  |
20. A pack of cards contains 4 aces, 4 kings, 4 queens and 4 jacks. Two cards are drawn at random. The probability that at least one of them is an ace is
- |             |             |
|-------------|-------------|
| (i) $1/5$   | (iii) $1/9$ |
| (ii) $3/16$ | (iv) $9/20$ |

### **Section B**

21. Find the domain and range of the function  $f(x) = \sqrt{9 - x^2}$ .
22. What is the number of ways of choosing 4 cards from a pack of 52 playing cards? In how many of these
- |                             |
|-----------------------------|
| (i) Four cards of same suit |
| (ii) Are face cards         |

Or

A committee of 7 has to be formed from 9 boys and 4 girls. In how many ways can this be done when the committee consists of:

- |                      |
|----------------------|
| (i) Exactly 3 girls  |
| (ii) Atleast 3 girls |

23. Find the distance of the point (3, -5) from the line  $3x - 4y - 26 = 0$ .

24. Evaluate:  $\lim_{x \rightarrow 0} \frac{\sin 4x}{\sin 2x}$ .

or

Evaluate:  $\lim_{x \rightarrow 2} \frac{3x^2 - x - 10}{x^2 - 4}$ .

25. Compute the derivative of  $f(x) = \sin^2 x$ .

### **Section C**

26. In a survey it was found that 21 people liked product A, 26 liked product B and 29 liked product C. if 14 people liked products A and B, 12 people liked products C and A, 14 people liked product B and C and 8 liked all the three products. Find how many liked product C only.
27. Line through the points (-2, 6) and (4, 8) is perpendicular to the line through the points (8, 12) and (x, 24). Find the value of x.
28. The coefficients of the  $(r-1)^{\text{th}}$ ,  $r^{\text{th}}$  and  $(r+1)^{\text{th}}$  terms in the expansion of  $(x+1)^n$  are in the ratio 1:3:5. Find n and r.

Or

Find a if the  $17^{\text{th}}$  and  $18^{\text{th}}$  terms of the expansion  $(2+a)^{50}$  are equal.

29.(i) Find the equation of the parabola which is symmetric about the y-axis and passes through the point (2, -3).

(ii) Find the equation of the ellipse, whose length of major axis is 20 and foci are (0,  $\pm 5$ ).

30. Show that the points A (1, 2, 3), B (-1, -2, -1), C (2, 3, 2) and D (4, 7, 6) are vertices of a parallelogram ABCD, but it is not a rectangle.

Or

Find the lengths of the medians of the triangle with vertices A (0, 0, 6), B (0, 4, 0) and C (6, 0, 0).

31.(i) A die is rolled. Let E be the event “die shows 4” and F be the event “die shows even number”. Are E and F mutually exclusive?

(ii) A coin is tossed. If the outcome is head, a die is thrown. If the die shows up an even number, the dice is thrown again. What is the sample space for the experiment?

### **Section D**

32. Prove that  $\cos^2 x + \cos^2 \left(x + \frac{\pi}{3}\right) + \cos^2 \left(x - \frac{\pi}{3}\right) = \frac{3}{2}$ .

Or

Prove that  $\frac{\cos 4x + \cos 3x + \cos 2x}{\sin 4x + \sin 3x + \sin 2x} = \cot 3x$ .

33. Solve the following system of inequality graphically

$$3x + 2y \leq 150$$

$$x + 4y \leq 80$$

$$x \leq 15, y \geq 0$$

34. The pth, qth and rth terms of an A.P are a, b, c respectively. Show that

$$(q - r)a + (r - p)b + (p - q)c = 0$$

Or

Let S be the sum, P be the product and R the sum of reciprocals of n terms in a G.P. prove that  $P^2 R^n = S^n$ .

35. Find the mean, variance and standard deviation using short cut method

Height	70-75	75-80	80-85	85-90	90-95	95-100	100-105	105-110	110-115
No of children	3	4	7	7	15	9	6	6	3

Or

Calculate mean, variance and standard deviation for the following distribution

Classes	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Frequency	3	7	12	15	8	3	2

## SECTION E

### 36. Case Study I:

In a library, 25 students read physics, chemistry and mathematics books. It was found that 15 students read mathematics, 12 students read physics while 11 students read chemistry. 5 students read both mathematics and chemistry, 9 students read physics and mathematics. 4 students read physics and chemistry and 3 students read all three subject books.

- (i). How many number of students who reading only chemistry?
- (ii). How many number of students who reading only mathematics?
- (iii). How many number of students who reading only one of the subjects?
- (iv). How many number of students who reading atleast one of the subject?

### 37. Case study II:

A state cricket authority has to choose a team of 11 members, to do it so the authority asks 2 coaches of a government academy to select the team members that have experience as well as the best performers in last 15 matches. They can make up a team of 11 cricketers amongst 15 possible candidates. In how many ways can the final eleven be selected from 15 cricket players if:

- (i). There is no restriction?
- (ii). one of them must be included
- (iii). Two of them being leg spinners, one and only one leg spinner must be included?
- (iv). If there are 6 bowlers, 3 wicket-keepers, and 11 batsmen in all. The number of ways in which a team of 4 bowlers, 2 wicket-keepers, and 5 batsmen can be chosen.

### 38. Case Study III:

In a company, 100 employees offered to do a work. In out of them, 10 employees offered ground floor only, 15 employees offered first floor only, 10 employees offered second floor only, 30 employees offered second floor and ground floor to work, 25 employees offered first and second floor, 15 employees offered ground and first floor, 60 employees offered second floor.

- (i). Find the number of employees who offered all three floors.
- (ii). Find the number of employees who offered ground floor.
- (iii). Find the number of employees who offered first floor.

The number of employees who did not offer any of the above three floors.

.....

**ST. PBN PUBLIC SCHOOL, GURUGRAM**  
**ANNUAL EXAMINATION**  
**CLASS XI**  
**BIOLOGY**  
**SAMPLE PAPER**

**TIME: 3 HRS.**

**M.M.: 70**

**General Instructions:**

1. The question paper comprises two sections—A and B. Attempt all the sections.
2. All questions are compulsory.
3. Internal choice is given in each section.
4. All questions (Q.no. 1 to 33) in Section A are one-mark questions comprising MCQ, VSA type and assertion-reason type, case based type questions. They are to be answered in one word or in one sentence.
5. All questions (Q.no. 34 to 42) in Section B are three marks and five-marks, short-answer and long-answer type questions.
6. This question paper consists of a total of 42 questions.

**SECTION-A**

1. \_\_\_\_\_ prevents the collapsing of the trachea.  
(a) Jugular foramen (b) Cartilaginous rings (c) Diaphragm (d) None of the above
2. When body tissues are injured resulting in the loss of blood, the process of blood clot begins and the blood platelets release  
(a) Fibrinogen (b) Thrombin (c) Prothrombin (d) Thromboplastin
3. Ornithine cycle leads to the formation of  
(a)  $\text{NH}_3$  (b)  $(\text{NH}_2)_2\text{CO}$  (c)  $\text{C}_5\text{H}_4\text{N}_4\text{O}_3$  (d)  $\text{C}_5\text{H}_4\text{N}_4$
4. The \_\_\_\_\_ secretes a fluid that cushions and lubricates the joints  
(a) Cutaneous membrane (b) Synovial membrane  
(c) Mucous membrane (d) None of the above
5. The gap in the myelin sheath between adjacent Schwann cells is called  
(a) Soma (b) Dendrite (c) Node of Ranvier (d) None of the above
6. \_\_\_\_\_ is a chemical substance that is released by an organism that can affect the behavior of another individual of the same species.  
(a) Pheromone (b) Androgen (c) Testosterone (d) All of the above
7. Energy transformation is never 100% efficient because of  
(a) Catabolism (b) Entropy (c) Homeostasis (d) Anabolism
8. Phylogenetic classification is based on \_\_\_\_\_  
(a) Overall similarities (b) Habit of plants  
(c) Common evolutionary descendants (d) All of these
9. Koshland's theory of enzyme action is known as  
(a) Lock and key theory (b) Reduced fit theory

(c) Induced fit theory

(d) Enzyme coenzyme theory

10. Veins of the leaves are useful for

(a) Mechanical support

(b) Transport of water & minerals

(c) Transport of organic nutrients

(d) All of the above

### **ASSERTION-REASONS**

In the following questions, two statements are given—one labeled Assertion (A) and the other labeled Reason (R).

Select the correct answer to the questions from the codes (a), (b), (c) and (d) as given below:

(a) Both Assertion(A) and Reason(R) are correct statements, and Reason(R) is the correct explanation of the Assertion(A).

(b) Both Assertion(A) and Reason(R) are correct statements, but Reason(R) is not the correct explanation of the Assertion (A).

(c) Assertion(A) is correct, but Reason(R) is incorrect statement.

(d) Assertion(A) is incorrect, but Reason(R) is correct statement.

11. **Assertion:** Monocot stem has collateral open vascular bundle.

**Reason:** Open vascular bundle is without vascular cambium.

12. **Assertion:** Root caps are absent in floating aquatic plants.

**Reason:** Root pockets are present in aquatic plants

13. **Assertion:** Inspiration occurs due to muscular relaxation.

**Reason :** During inspiration the diaphragm and external intercostal muscles contract simultaneously

14. **Assertion :** Type 'O' blood group individuals are called 'universal donors'.

**Reason:** RBC of 'O' blood group consists of both A and B surface antigens.

15. **Assertion:** If human urine is allowed to stand for some time, it smells strongly of ammonia.

**Reason:** Main constituent of human urine is ammonia.

16. **Assertion :** Extra oxygen consumption in human body is known as oxygen debt.

**Reason:** Extra oxygen is required by the body to exercise the accumulated lactic acid produced during strenuous exercise.

### **17. Case based questions-**

Fermentation is a metabolic process in which an organism converts a carbohydrate, such as starch or a sugar, into an alcohol or an acid. For example, yeast performs fermentation to obtain energy by converting sugar into alcohol. Bacteria

perform fermentation, converting carbohydrates into lactic acid. The study of fermentation is called **zymology**.

Answer the following questions:

a) Fermentation is considered as a wasteful process. Justify by giving two reasons.

b) What would be the maximum concentration of alcohol in beverages that are naturally fermented? Give reason.

c) Name the enzymes used in alcoholic fermentation.

18 :- Most enzymes discovered to date are proteins. There are even nucleic acids that exhibit characteristics of enzymes are called ribozymes. Enzymes are similar to proteins, wherein, it possesses a primary structure as well as secondary and tertiary structures.

In the simplest of sense, enzymes work on a “lock and key” basis (based on the model first postulated by the Emil Fischer.) The model takes the analogy that the lock is the enzyme and the substrate functions as the key. A substrate is a molecule acted on by an enzyme, hence, only the correctly sized substrate will fit in the keyhole (an analogy for the active site) of the lock (or the enzyme in this case).

ANSWER THE FOLLOWING QUESTION

- a) What are ribozymes?
- b) Explain lock and key mechanism of enzyme action
- c) What are cofactors?
- d) Name the scientist that discover lock and key mechanism

## SECTION B

19. In adults, insufficient thyroxine can lead to which disease ?

20 What are antagonistic muscles?

21.What is the cardiac cycle and ECG

22Why does smoking cigarette cause emphysema?

23.Blue green alga belongs to which group

OR

Name the colorless gas that is used as signaling hormone. Explain different types of neuron

## Section-C

### Short Questions

24 Explain the role of intercoastal muscles in respiration.

25.(a)Which is the site where RBCs are formed?

(b) Name the part of the heart that initiates and maintains the rhythmic activity

(c) What is the heart of crocodiles is specific amongst reptilians?

26What is the remedial measure advised for the correction of acute renal failure? Explain briefly.

27.Write difference between red & white muscle fibres.

28. Draw a labelled diagram of sliding filament theory of muscle contraction

29 iDiagrammatically indicate the location of various endocrine glands in our body

ii Write different types of plant hormones

30 Draw and explain Glycolysis.

### Long Questions

31(a) Cell is a basic unit of life. Discuss in brief.

(b). Why is abscisic acid also known as stress hormone?

32(a) Why is the colour of a leaf kept in the dark frequently yellow or peel green which pigment do you think is more stable?

(b) Define RQ. Write its value for carbohydrates.

33.(a) When and where does reduction division take place in the life cycle of a liver sperm and an angiosperm

(b)“All vertebrates are chordates but all chordates are not vertebrates “justify the statement.

**ST. PBN PUBLIC SCHOOL**  
**ANNUAL EXAMINATION**  
**CLASS -XI**  
**PHYSICAL EDUCATION**  
**SAMPLE PAPER**

**TIME: 3 HRS.**

**M.M-70**

**General Instructions:**

- 1) The question paper consists of five sections and 37 Questions.
- 2) Section A consists of question 1-18 carrying 1 mark each and is multiple choice questions. All Questions are compulsory.
- 3) Section B consists of question 19-24 carrying 2 marks each and are very short answer types and should not exceed 60-90 words. Attempt any 5.
- 4) Section C consists of question 25-30 carrying 3 marks each and are short answer types and should not exceed 100-150 words. Attempt any 5.
- 5) Section D consists of question 31-33 carrying 4 marks each and are case studies. There is internal choice available.
- 6) Section E consists of question 34-37 carrying 5 marks each and are long answer types and should not exceed 200-300 words. Attempt any 3.

**Section -A**

Q(1) The sport which is not included in the Olympics is:

- (a) Cricket (b) Football  
(c) Athletics (d) Hockey

Q(2) Which of the following is not an objective of Fit India programme?

- (a) Fitness for all (b) To encourage masculine body  
(c) Encourage indigenous sports (d) Fitness reach every school

Q(3) Who is the Father of the Modern Olympic Games?

- (a) Pierre-de-coubertin (b) Aristotle  
(c) John Pele (d) None of these

Q(4) The values of Olympics are:

- (a) Excellence (b) Respect (c) Friendship (d) All of these

Q(5) Kapalbhathi improves the functioning of the:

- (a) Lungs (b) knees (c) joints (d) liver

Q(6)

Column A		Column B		
A. Principle of Variety		(i)	training should be a continuous process.	
B. Principle of Continuity		(ii)	alternate between heavy, light and moderate exercise.	
C. Principle of Overload		(iii)	fitness level of every person varies	
D. Principle of Individual Difference		(iv)	additional stress on the body	

Option	Code			
	A	B	C	D
a)	iv	ii	i	iii
b)	i	ii	iii	iv
c)	iii	iv	ii	i
d)	ii	i	iv	iii

Q(7) The word 'YOGA' is derived from which Sanskrit word?

- (a) Nir                      (b) Yuj                      (c) Yukti                      (d) None of these

Q(8) Which Indian athlete won a Gold medal in Tokyo Olympics in Javelin?

- (a) Neeraj Chopra    (b) PV Sindhu            (c) Lovlina Borgohain    (d) Manpreet Singh

Q(9) Which of the following can be the cause of disability?

- (a) Ignorance            (b) Poverty            (c) Accident            (d) All of these

Q(10) Performing Daily Chores without any fatigue is :

- (a) Mental wellness    (b) Dynamic ability    (c) Physical Fitness    (d) None of these

Q(11) The blood oxygenates the:

- (a) Air                      (b) Water                      (c) Blood                      (d) Acid

Q(12) What is the primary cause of lifestyle diseases such as high blood pressure, diabetes, heart attack?

- (a) Poor eating habits                      (b) Lack of exercise  
(c) Sedentary lifestyle                      (d) All of the above

Q(13) Study of the motion is:

- (a) Kinesiology                      (b) Operation science  
(c) Structural science                      (d) None of these

Q(14) A motion that pulls a body part away from the midline of the body is :

- (a) Abduction                      (b) Adduction                      (c) Distance                      (d) None of these

Q(15) Muscular endurance can be improved by :

- (a) Jogging                      (b) Cycling                      (c) Dancing                      (d) All of the above

Q(16) **The study of Human behaviour is**

- (a) Psychology                      (b) Home science    (c) Social science                      (d) Political science

Q(17) **Wind pipe is related to:**

- (a) Circulatory system                      (b) Respiratory system    (c) Digestive system                      (d) None of these

Q(18) Body Mass Index (BMI) is a measure of body :

- (a) Fat                      (b) Vitamins                      (c) Carbohydrates                      (d) None of these

### **Section-B**

Q(19) What is the aim of physical education? Explain.

Q(20) Explain the Olympic values.

Q(21) What do you understand by Neti Kriya?

Q(22) What is intellectual disability?

Q(23) Write the components of wellness.

Q(24) Explain any two functions of the skeletal system.

### **Section-C**

Q(25) Explain internal and external respiration.

Q(26) Give any three management techniques for adolescent problems.

Q(27) Describe the benefits of Pranayama.

Q(28) What are the causes and symptoms of overload.

Q(29) What is Dhouti Kriya? Describe its benefits.

Q(30) How is physiotherapist helps children with special needs ?

### **Section-D**

Q(31) Abhimanyu is a physical Education Teacher. It makes him very sad to know that there are many children with disabilities in his school who are unable to participate in physical education activities and so he decides to include participation of such students also in physical education activities. He started contribute in the physical improvement of a disabled child through special organisation, suitable venue and appropriate and improved material. He also requests to the Principal for the availability of various professionals in the school for children with disabilities. He also keeps the CWSN students informed about the various competitions organized for them in order to create interest in sports among them. On the basis of the above, answer the following questions.

(i) What are the objectives of adapted physical education?

(ii) What is the role of special educator for a CWSN?

(iii) What is the role of counsellor for a Divyang person?

Q(32) Divya and jolly are good Basketball players. Both of them practice regularly. But during competition Jolly performs good while Divya is not able to perform so well most of the time. One day she decided to ask the reason for the good performance to Jolly. Being a good friend, Jolly told her that she also wasn't able to perform well earlier then her coach adviced to execute the game still keeping in mind the basic principles of biomechanics.

On the basis of the above data, answer the following questions:

(i) How Jolly was able to demonstrate better game? Discuss.

(ii) Discuss the importance of Biomechanics in games and sports.

(iii) Biomechanics is the study of mechanical laws related to the movement. Discuss.

Q(33) Evaluation and measurement is important to assess the base and then the progress in all facets of life, moreso in the sports. Performance enhancement is always a goal but one needs to know and understand the starting baseline. Before any sports can be initiated, a clear understanding of why it is important to test, measure and evaluate any performance has to be in place. As the PE teacher of your school, you have to lay out the reasons for implementing testing and measurement.

(i) What do you understand by test, measurement and evaluation?

(ii) Why is it important?

(iii) How do these factors help you in effective planning of the school sports curriculum?

### **SECTION -E**

Q(34) Discuss in detail the Khelo India Scheme.

Q(35) Describe the various elements of yoga.

Q(36) Discuss the management of adolescent problems.

Q(37) Explain doping and its classification.

**St. PBN PUBLIC SCHOOL**  
**ANNUAL EXAMINATION**  
**CLASS XI**  
**COMPUTER SCIENCE**  
**(SUBJECT CODE-083)**  
**SAMPLE PAPER**

**Time: 3 hours**

**M.M:70**

**GENERAL INSTRUCTIONS:**

- Please check this question paper contains 35 questions.
- This paper is divided into 5 Sections- A, B, C, D and E .
- Section A, consists of 18 questions (1 to 18).Each question carries 1 mark.
- Section B, consists of 7 questions (19 to 25). Each question carries 2 marks.
- Section C, consists of 5 questions (20 to 30). Each question carries 3 marks.
- Section D, consists of 3 questions (31 to 33). Each question carries 5 marks.
- Section E consists of 2 questions (34 to 35). Each question carries 4 marks.
- All programming questions are to be answered using Python Language only.

**SECTION- A**

**Choose the correct option and write in the answer sheet**

**(1 x 18 = 18)**

**1. How many bytes are in 1 Kilobyte?**

- |               |                |
|---------------|----------------|
| (a) 8 Bytes   | (c) 1024 Bytes |
| (b) 128 Bytes | (d) 256 Bytes  |

**2. Convert  $(300)_{10}$  into Hexadecimal equivalent.**

- |                  |                  |
|------------------|------------------|
| (a) $(12C)_{16}$ | (c) $(32A)_{16}$ |
| (b) $(4D)_{16}$  | (d) $(16B)_{16}$ |

**3. Which of the following statements assigns the value 25 to the variable x in Python:**

- |                       |                             |
|-----------------------|-----------------------------|
| (a) $x \leftarrow 25$ | (c) $x := 25$               |
| (b) $x = 25$          | (d) <code>int x = 25</code> |

**4. The data or text enclosed with single quote, double quote or triple quote is known as \_\_\_\_\_.**

- |            |                |
|------------|----------------|
| (a) String | (c) Tuple      |
| (b) List   | (d) Dictionary |

**5. The interactive interpreter of python is termed as \_\_\_\_\_**

- |                        |                         |
|------------------------|-------------------------|
| (a) Python Shell       | (c) Python Editor Mode  |
| (b) Python Script Mode | (d) Python Command Line |

6. \_\_\_\_\_ are diagrams that show the step by step solution to a given problem.
- (a) Pie Chart (c) Column Chart  
(b) Flow Chart (d) Bar Chart
7. Which of the following falls under utilities?
- a) Text editor c) Disk defragmenter  
b) Backup d) All of these
8. Which abandons the current iteration of the loop?
- (a) continue (c) stop  
(b) break (d) infinite
9. Identify the invalid identifiers from the given options.
- (a) 981a (c) a0  
(b) a (d) \_a0
10. Index of list starts from \_\_\_\_\_
- (a) 10 (c) 11  
(b) 0 (d) 110
11. Which of the following operator is used to concatenate the strings
- (a) + (c) /  
(b) \* (d) -
12. Dictionary has a Unique \_\_\_\_\_
- a) value c) both  
b) key d) none of these
13. When a person is harassed repeatedly by being followed, called or written to, he/she is a target of:
- (a) Bullying (c) Stalking  
(b) Identity theft (d) Phishing
14. Which of the following is not a cybercrime?
- (a) Denial of Service (c) Malware  
(b) Man in the Middle (d) None of the above

15. Which of the following is an relational operator?

- a) =
- b) <=
- c) +=
- d) None of these

16. \_\_\_\_\_ software is made to perform a specific task

- a) System
- b) Application
- c) Utility
- d) None of these

**Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as**

- a) Both A and R are true and R is the correct explanation for A
- b) Both A and R are true and R is not the correct explanation for A
- c) A is True but R is False
- d) A is false but R is True

**17. Assertion (A):** Higher precedence operator is evaluated before the lower precedence operator.

**Reason (R):** For operators with equal precedence, the expression is evaluated from right to left.

**18. Assertion (A):** Data types are used to identify the type of data.

**Reason (R):** Data types are two types as numbers and strings.

### SECTION B

(2x 7 = 14)

19. (i) What will be the output of following code?

```
>>> print("14<=46:", 14<=46)
```

(ii) What will be the output of the following snippet?

```
list1=[8,0,9,5]
```

```
print(list1[::-1])
```

(1+1)

20. (i) Write the python statement to type cast the float value of r = 98.40 into an integer type.

(ii) Which statement is used in python to terminate the infinite loop?

(1+1)

21. (i) Convert (ABCD)<sub>16</sub> to ( )<sub>2</sub>

(ii) Draw a truth table of XOR Gate.

(1+1)

### OR

State and Prove De Morgan's First law using truth table

(2)

22. Write a program to calculate the sum of all the elements of a list.

(2)

23. Write Python code to find the number of words in a string input by the user.

(2)

24. (i) Predict the output of the following code.

```
Keys = {1,2,3,4,5}
```

```
print(dict.fromkeys(keys))
```

(ii) What is packing of tuples? (1+1)

25. What is the difference between Syntax error and Run-time error? (2)

### SECTION C

(3x 5 = 15)

26. Draw the truth table and logical circuit of the given Boolean expression:  $F = P.Y + D.T + (A.B)$  (3)

27. Write a Program in python to check whether the given string is Palindrome or not (3)

28. What do you mean by Flowchart? Explain with example.

**OR**

Draw a flowchart to print the sum of first 10 natural numbers. (3)

29. Explain the following terms:

(i) Application software

(ii) EEPROM

(iii) Bar code reader (3)

30. Write an algorithm to check whether a number is prime number or not. (3)

### SECTION D

(5x 3 = 15)

31. Draw the logic circuit and truth table for the following Boolean expression:

i.  $(P' + D) . S + R'$

ii.  $(A . B) . (B + C . D')$  (2+3)

32. (i) Write a Python program to accept a list of all the subject of Class X and display the list of subjects.

(ii) Write a Python program to calculate area of circle and area of rectangle using concept of functions.

**OR**

(Option for (ii) part only)

What are the effects of cyber bullying and trolling? (3+2)

33. (i) Why is it important to recycle e-waste?

(ii) What are the techniques used in India for E-waste management? (3+2)

### SECTION E

(2 x 4 = 8)

**34.** ABC Technologies deals in hardware components required for assembling computer systems in the Nehru Place market. They provide reliable and efficient data storage devices to their customers.

Four storage devices in which they deal are described below. Name the storage device being described and also list the appropriate category of storage.

- (i) Optical media which use one spiral track; red lasers are used to read and write data on the media surface; makes use of dual-layering technology to increase storage capacity.
- (ii) Non-volatile memory chip: contents of the chip cannot be altered; it is often used to store the start-up routines in a computer.
- (iii) Optical media which use blue laser technology to read and write data on the media surface.
- (iv) Magnetic disc with very large storage capacity; can be used to store vast amounts of data; mostly fixed in computer cases and serves as the main storage device. (1+1+1+1)

**35. (i) Write a python program to print the following pattern:**

```
A
B B
C C C
D D D D
E E E E E
F F F F F F
G G G G G G G
```

- (ii) Write a program to create a dictionary of phone numbers and person's name. Also write the code to search the phone number of a particular person name inputted by user. (2+2)