

HALF YEARLY

CLASS – XI

PHYSICS

Time allowed: 3 hours

M.M:70

GENERAL INSTRUCTIONS

All questions are compulsory.

- Questions 1 to 20 carries 1 mark each
- Questions 21 to 27 carries 2 marks each
- Questions 28 to 34 carries 3 marks each
- Questions 35 to 37 carries 5 marks each

1. Which fundamental force/forces obey inverse square law?
2. Write the dimensional formulae of wavelength and frequency of a wave.
3. The distance of a galaxy is of the order of 10^{25} m. calculate the order of magnitude of time taken by light to reach us from the galaxy.
4. What are fundamental units ?
5. What is meant by unit of physical quantity?
6. Can speed of an object be negative ?
7. A train is running at a constant speed of 36 km/h. what is its speed in m/s ?
8. What will be the nature of velocity – time graph for a uniform motion ?
9. Can sum of two vector quantities be a scalar ? Can it be a numeric ?
10. What is inertia ?
11. Does inertia of a body depend on any factor other than mass ?
12. Are newton's first law of motion and Gallileo's law of inertia same or different ?
13. A bullet fired from a refill is more dangerous than air molecule heating a person, through both of them have almost the same speed. Why ?
14. When is work said to be 1 joule ?

15. Give two examples from daily life where according to physics work done is zero.
16. What is the source of the kinetic energy of falling rain drops ?
17. Is force of friction a conservative force ? Give reason.
18. Write one most important application of geo- stationary satellites.
19. On what factors does the time period of a satellite revolving around the earth depend ?
20. How does the orbital speeds of the satellites depends on the mass of the satellite ?
21. Express light year in terms of astronomical units.
22. Show that for the two particle system :

$$F_{12} = - F_{21}.$$
23. Does the change in gravitational potential energy of a body between two given points depends upon the nature of path followed ? why ?
24. A light body and a heavy body have the same momentum, which one will have greater kinetic energy? Explain.
25. A particle is thrown upwards. It attains a height h after 5 s and again after 9 s. what is the speed of the particle at the height h ?
26. A box of wood is placed on a 30° slope. If the coefficient of kinetic friction be 0.1, what is the downward acceleration of the wooden box ?
27. When is the potential energy of a body is said to be positive and when negative?
28. Find the distance travelled by the uniformly accelerated object moving in one dimension in n th second.
29. Explain the term 'displacement vector'. Show that the displacement vector is equal to the difference of position vectors ?
30. Time period T of a simple pendulum may depend upon its mass m , length l , and acceleration due to gravity g . find an expression for time period T by method of dimensions.
31. (a) Define unit vector.
 (b) Determine a unit vector perpendicular to both $A = 2\mathbf{i} + \mathbf{j} + \mathbf{k}$ and $B = \mathbf{i} - \mathbf{j} + 2\mathbf{k}$
32. A car of mass 1000 Kg accelerate uniformly from rest to a velocity of 54 Km/hr in 5 s. calculate (i) its acceleration, (ii) its gain in kinetic energy (iii) average power of the engine during the period. Neglect friction.
33. Define escape velocity. Obtain an expression for the escape velocity

of a body from the surface of the earth.

34. Derive a relation for the optimum velocity negotiating a curve by a vehicle in a banked curve.
35. Prove that in an elastic collision in one dimension the relative velocity of approach before impact is equal to the relative velocity of separation after impact.
36. Define projectile. Find expressions for (i) the maximum height reached, (ii) time of flight, and (iii) the horizontal range of the projectile when object is thrown with velocity u .
37. Derive Newton's law of gravitation from Kepler's third law of planetary motion.

HALF YEARLY EXAMINATION SAMPLE PAPER

XI

CHEMISTRY

TIME: 3Hrs

M.M: 70

General Instruction:

- (i) Question numbers 1 to 20 are one mark questions.
- (ii) Question numbers 21 to 27 are two marks questions.
- (iii) Question numbers 28 to 34 are three marks questions.
- (iv) Question numbers 35 to 37 are five marks questions.

1. Out of K and K^+ which one would have larger size and why?
2. Explain Eutrophication .
3. How much CO_2 is produced when 6 g of C is burnt in excess oxygen?
4. Name the groups of elements classified as s, p, d and f blocks in the modern periodic table.
5. State Heisenberg's uncertainty principle.
6. Arrange the following in increasing Order of Stability ;
 $(CH_3)_3C^+$, $CH_3CH_2CH_2C^+H_2$, $CH_3CH_2C^+HCH_3$
7. Which of the following compounds will show cis-trans isomerism:
(a) $(CH_3)_2C=CH-CH_3$ (b) $C_6H_5CH=CH-CH_3$
8. Which orbital is non-directional?
9. Oxygen has lesser first ionization enthalpy than nitrogen. Why?
10. Define Isomerism.
11. Electron gain enthalpy values of inert gases are zero. Why?
12. How many electrons in an atom may have the following quantum numbers?
(a) $n = 4, m_s = -\frac{1}{2}$ (b) $n = 3, l = 0$

13. Complete the following reaction:
 $\text{CH}_3\text{-CH}=\text{CH}_2 + \text{HBr}$ in presence of peroxide
14. What do mean by Mole fraction?
15. Define Global warming.
16. Flourine has less negative electron gain enthalpy than chlorine. Why?
17. In both water and ether ($\text{CH}_3\text{-O-CH}_3$) oxygen atom is central atom and has the same hybridization ,yet they have different bond angles. Which one has the greater bond angle?
- 18 Which hybrid orbitals are used by carbon in the following:
a) $\text{CH}_2=\text{CH-CH}=\text{CH}_2$ b) CH_3COOH
19. What do you understand by isoelectronic species?
20. Why does the presence of a nitro group make the benzene ring less reactive in comparison to the unsubstituted benzene ring?
21. Give two points of difference between inductive effect and resonance effect.
22. What do you understand by (a) Mists (b) Smoke
23. A compound contains 4.07% hydrogen, 24.27% carbon and rest is chlorine. Its molar mass is 98.96 g. Determine its empirical formula and molecular formulas.
24. What are Alkanes? Why are they called paraffins?
25. Using the periodic table, predict the formulas of compounds which might be formed by the following pairs of elements:
(a) silicon and bromine
(b) aluminium and sulphur
26. Nitrogen and hydrogen react with each other to produce ammonia.
a) Calculate the mass of ammonia formed if 2kg of nitrogen gas reacts with 1kg of hydrogen gas.
b) Which of the following will remain unreacted and what will be the amount left unreacted?

27. What are the frequency and wavelength of a photon emitted during a transition from $n=5$ state to the $n = 2$ state in the hydrogen atom?
28. Write the reactions involved for ozone layer depletion in the stratosphere.
29. a) State Aufbau principle.
- b) A microscope using suitable photons is employed to locate an electron in an atom within a distance of 0.1 \AA . What is the uncertainty involved in the measurement of its velocity?
30. Write is the structure of the alkene which on reductive ozonolysis gives butanone and ethanal.
31. a) What are degenerate orbitals ? Give examples.
- b) Show that the circumference of the Bohr's orbit for H atom is an integral multiple of de Broglie's wavelength associated with the electron revolving around the orbit.
32. Discuss how the valence bond theory explains the shape of H_2O .
33. In the alkane $\text{H}_3\text{C} - \text{CH}_2 - \text{C}(\text{CH}_3)_2 - \text{CH}_2 - \text{CH}(\text{CH}_3)_2$, identify $1^\circ, 2^\circ, 3^\circ$ carbon atoms and give the number of H atoms bonded to each one of these.
34. Discuss the shape of the following molecules using VSEPR model:
- $\text{BeCl}_2, \text{BCl}_3, \text{SiCl}_4$
35. Draw the resonance structures for $\text{C}_6\text{H}_5\text{NO}_2$. Show the electron shift using curved – arrow notation.
36. Write IUPAC names of the products obtained by the ozonolysis of the following compounds:
- (a) 2- Ethylbut-1-ene
- (b) 1- Phenylbut-1-ene
- Explain the reactions.
37. Describe the hybridization scheme in case of PCl_5 . Why are the axial bonds longer as compared to equatorial bonds?

HALF YEARLY
Class - XI
Computer Science
Sample Paper

- Q1. a. Why are logical errors harder to locate? 2
- b. What is the difference between break and continue statements? 2
- c. Two types of looping statements are _____ and _____. 1
- d. Name the components of a microprocessor. 1
- e. What is Byte? 1
- f. Define Source and Object program. 2
- Q2. a) What type of error it will produce when you type? 1
- ‘Hello’+1
- b) Differentiate between Volatile and Non-Volatile memory. 2
- c) What will be the output produced by following code? Ch-8 2
- ```
y= str (123)
x= “hello” * 3
print (x,y)
x= “hello” + “world”
y= len (x)
print (y,x)
```
- d) What is cloud computing? State the advantage of compiled languages over interpreted languages. 3
- e) Write a program that reads a string and then prints a string that capitalizes every other letter in the string, e.g. school becomes sChOol. 2
- f) What are the main types of software? 1
- g) Write a program to count the number of times a letter appears in a string? 2
- h) Draw the logic circuit diagram for the following Boolean expression. 2
- $(x' + y). z + w'$
- Q3. a. What is Binary Variable? 1
- b. What is code space? Ch-14 1
- c. What is traversing a string? 1
- d. Write the types of ROM memory. 1

|                                                                                                    |   |
|----------------------------------------------------------------------------------------------------|---|
| e. Define hardware?                                                                                | 1 |
| f. NOR gate is a combination of _____                                                              | 1 |
| g. Convert $(101.10)_{16} \rightarrow (?)_2$                                                       | 2 |
| h. What is the difference between else clause of if-else and else clause of Python loops?          | 2 |
| i. What do you understand by number system?                                                        | 2 |
| Q3. a) Prove algebraically $X \oplus X \cdot Y = X + Y$ .                                          | 1 |
| b) Add the binary numbers 1011 and 110?                                                            | 1 |
| c) What is a string slice?                                                                         | 1 |
| d) "Hardware is of no use without software and software cannot be used without hardware". Explain. | 1 |
| e) Write any two popular operating system.                                                         | 1 |
| f) What are logical statements.                                                                    | 1 |
| g) Convert $(EF.B1)_{16} \rightarrow ()_{10}$                                                      | 2 |
| h) What is the difference between break and continue statements?                                   | 2 |
| i) Draw a logical circuit diagram for the following Boolean expression.                            | 2 |
| $F(U,V) = U \cdot V + U \cdot V'$                                                                  |   |
| Q4. a) Find 1's and 2's complement of 17.                                                          | 2 |
| b) Why is a control unit referred to as the central controller of a computer?                      | 2 |
| c) Make comparison between Static RAM and Dynamic RAM. Ch-11                                       | 2 |
| d) Write a program to accept a number and display whether the number is a palindrome or not.       | 2 |
| e) When do these exceptions occur? Ch-7                                                            | 3 |
| i) Type Error                      b) Index Error                      c) Name Error               |   |
| f) Briefly explain the basic architecture of a computer.                                           | 3 |
| <b>or</b>                                                                                          |   |
| f) How are software libraries useful? Name some software libraries of Python.                      | 3 |
| g) Draw a circuit diagram using NOR gate for the Boolean expression                                | 3 |
| $f(a,b,c) = AB + A\bar{C} + \bar{B} \bar{A}C$                                                      |   |
| h) What are these pdb commands used for?                                                           | 4 |
| i) b                      ii) cl                      iii) l                      iv) h            |   |

Q5. a) Write a program that reads a line, then counts how many times a substring appears in the line and displays the count. 4

**OR**

a) Write a python script to enter your name and print the name your character times. Notice that the space should not be included as a character with name. 4

b) Determine the Hexadecimal equivalent of the following binary number: 3

a. 101111100001

b. 1110001111

c. 10000100111

c) i) Rewrite the following program using for() loop: ch-6 3

```
Sum=0;
i=1;
while (i<=10):
 sum=sum + i ;
 i+=1;
print("sum=" , sum)
```

ii) Write a program to print the following pattern: 3

```
A 123
BC 12
DEF 1
GHIJ
KLMNO
```

## Half Yearly Examination

### Class XI

### Subject: Biology

Time: 3Hrs

M.M.:70

#### General Instructions:

- All questions are compulsory
- This question paper consists of five sections A, B, C, D and E.
- Section A comprises of Q1. to Q5. of 1 mark
- Section B comprises of Q6. to Q12. of 2 marks
- Section C comprises of Q13. to Q24. of 3 marks
- Section D comprises of Q25. to Q27. of 5 marks

#### Section A

- Q1. What are peptides ?
- Q2. What do ATP and ADP stand for?
- Q3. During which stage of mitosis, nuclear envelope and nucleolus disappear?
- Q4. Who is introduced the term 'cell'?
- Q5. What is lacteal?

#### Section B

- Q6. State differences between SER & RER
- Q7. Write the name of any one amino acid, sugar, nucleotide and fatty acid.
- Q8. In which phase of meiosis are the following formed?
- a) Synaptonemal complex
  - b) Recombination nodules
  - c) Termination of chiasmata
  - d) Formation of diads
- Q9. What is meant by vital capacity? List any two categories of people which posses higher vital capacity.
- Q10. What are the three major types of cells found in the gastric glands? name their secretions.
- Q11. What is erythropoiesis? Which hormone stimulates it?
- Q12. Name the visual pigments present in photoreceptors. What role these pigments play?

### Section C

- Q13. What is the role played by Renin-Angiotensin in the regulation of kidney function?
- Q14. With the respect of ribcage, explain the following:
- Bicephalic ribs
  - True ribs
  - Floating ribs
- Q15. Explain the mechanism of muscle contraction with the help of diagrams.
- Q16. What is function ascribed to eustachian canal?
- Q17. Draw a simple diagram of human Nephron. Label any six parts.
- Q18. Mention where the following are located in the human brain, and give one function of each :
- (a) Temporal lobe    (b) Cerebellum    (c) Corpus Callosum
- Q19. What are glycosidic, peptide and ester bonds?
- Q20. Explain different categories of animals based on the presence or absence of coelom with example.
- Q21. "Algae & Bryophytes are different from each other." Point out the main differences between them.
- Q22. Name the following
- The hormones released by posterior pituitary
  - The hormones synthesized by the thyroid follicles
  - The hormones secreted by the islets of Langerhans in pancreas
- Q23. Differentiate between cartilage and bony fishes.
- Q24. Draw a well labelled diagram of Human Ear.

### Section D

- Q25. List and explain the three ways by which CO<sub>2</sub> is transported by blood in the human body. Support the answer with a suitable diagram.
- Q26. Describe the events of cardiac cycle. Explain 'double circulation'.
- Q27. A person had 'roti' and 'dal' for his lunch. Trace the changes in these during its passage through the alimentary canal.

# **HALF YEARLY EXAMINATION**

## **CLASS – XI**

### **PHYSICAL EDUCATION**

**TIME: 3 Hrs.**

**M.M: 70**

#### **General Instructions:**

- The question paper consists of 22 questions.
- All questions are compulsory.
- Q1 to Q 6 are of 1 mark each must be answered in 10 to 20 words.
- Q 7 to 14 are of 3 marks each must be answered in 30 to 50 words.
- Q 15 to 22 are of 5 marks each must be answered in 75 to 100 words.

Q1 What do you mean by sports journalism?

Q2 What is the Olympic Motto?

Q3 Define Endurance.

Q4 What do you mean by integrated physical education?

Q5 What is Dhayana?

Q6 Who are made leaders?

Q7 What are the objectives of physical education?

Q8 What is the importance of soft-skills in sports management?

Q9 Discuss 'healthy diet' as a component of positive lifestyle.

Q10 What is the function of IOA and IOC?

Q11 Write about the need and importance of inclusive education?

Q12 What are the elements of Yoga?

Q13 Discuss about the types of leadership in physical education.

Q14 What safety measures children should be taught while participating in river rafting?

Q15 Explain in detail about changing trends in physical education.

Q16 Explain in detail about various physical education courses available in India.

Q17 Write a short note on :-

- (i) Chacha Nehru award                      (ii) Olympic flame

Q18 What do you mean by physical fitness? Explain the importance of physical activity on enhancing the life.

Q19 Explain briefly about Paralympics movement.

Q20 Explain in detail special Olympic Bharat.

Q21 What is Yoga nidra? Explain the steps of Yoga nidra.

Q22 Explain in detail about the behavior change stage for physical activity.

**SAMPLE PAPER**  
**EXAM – HALF YEARLY**  
**CLASS – XI**  
**SUBJECT – ENGLISH**

**TIME: 3 HOURS**

**M.M – 80**

**GENERAL INSTRUCTIONS-**

1. All questions are compulsory.
2. Your answer should be to the point, and strictly adhere to the prescribed word limit.

**SECTION – A READING (20 marks)**

**Q1. Read the passage carefully and answer the following questions: (12m)**

1. In life we sometimes have disagreements with people. It could be with your partner, with your boss, with your parents, or with a friend. When this happens, the important thing is to try not to let a calm discussion turn into a heated argument. But of course this is easier said than done.
2. The first thing I would say is that the way you begin the conversation is very important. Imagine you are a student and you share a flat with another student who you think isn't doing her share of the housework. If you say, "Look, you never do your share of the housework. What are we going to do about it?", the discussion will very soon turn into an argument. It's much more constructive to say something like, 'I think we'd better have another look about how we divide up the housework. Maybe there's a better way of doing it.'
3. My second piece of advice is simple. If you're the person who is in the wrong, just admit it! This is the easiest and best way to avoid an argument. Just apologize to your flatmate, your parents, or your husband, and move on. The other person will have more respect for you in the future if you do that.
4. The next tip is don't exaggerate. Try not to say things like "You always come home late when my mother comes to dinner' when perhaps this has only happened twice, or "You never remember to buy the toothpaste." This will just make the other person think you're being unreasonable, and will probably make him or her stop listening to your arguments.
5. Sometimes we just can't avoid a discussion turning into an argument. But if you do start arguing with someone, it is important to keep things under control and there are ways to do this.
6. The most important thing is don't raise your voice. Raising your voice will just make the other person lose their temper too. If you find yourself raising your voice, stop for a moment and take a deep breath. Say 'I'm sorry I shouted, but this is very important to me, and continue calmly. If you can talk calmly and quietly, you'll find your partner will be more ready to think about what you are saying.

7. It is also very important to stick to the point. Try to keep to the topic you are talking about. Don't bring up old arguments, or try to bring in other issues. Just concentrate on solving the one problem you are having, and leave the other things for another time. So, for example, if you're arguing about the housework, don't start talking about mobile phone bills as well.

8. And my final tip is that if necessary call 'Time out', like in a sports match. If you think that an argument is getting out of control, then you can say to the other person, 'Listen, I'd rather talk about this tomorrow when we've both calmed down'. You can then continue the discussion the next day when perhaps both of you are feeling less tense and angry. That way there is much more chance that you will be able to reach an agreement. You'll also probably find that the problem is much easier to solve when you've both had a good night's sleep. Well, those are my tips.

9. But I want to say one last important thing. Some people think that arguing is always bad. This is not true. Conflict is a normal part of life, and dealing with conflict is an important part of any relationship, whether it's three people sharing a flat, a married couple, or just two good friends. If you don't learn to argue properly, then when a real problem comes along, you won't be prepared to face it together. Think of the smaller arguments as training sessions. Learn how to argue cleanly and fairly. It will help your relationship become stronger and last longer.

### **1.1 choose the correct option: (4m)**

a. .... is easy to suggest but quite difficult to do.

- i. To have disagreements with people.
- ii. Not to let a peaceful discussion change into a heated argument.
- iii. "Never raise your voice"
- iv. To have heated argument with friends,

b. In case we are wrong we should ..... to avoid argument.

- i. flatmate
- ii. exaggerate
- iii. respect
- iv. Apologise

c. The second paragraph suggests when we ..... others, it leads to argument.

- i. share the work with
- ii. accuse
- iii. divide the work anew with
- iv. only (i) & (ii)

d. .... can help strengthen relationships.

- i. Learning to argue clearly
- ii. Learning to avoid arguments,
- iii. Learning to argue fairly

iv. Only (i) and (iii)

**1.2 Answer the following questions briefly: (8m)**

- a. What happens if a complaint is exaggerated?
- b. Name two activities that to help to keep arguments under control.
- c. Raising our voice in an argument is not good. Why?
- d. What happens if we don't learn to argue properly?
- e. How does Time Out help in argument?
- f. When is your partner in an argument more ready to think about your point of view?
- g. Find words/phrases from the passage which mean the OPPOSITE as each of the following
- h. Surely (Para-4) ii. Initial (Para 8)

**Q2. Read the following passage and answer the questions that follow: (8m)**

1. The tests of life are its plus factors. Overcoming illness and suffering is a plus factor for it moulds character. Steel is iron plus fire, soil is rock plus heat. So let's include the plus factor in our lives.

2. Sometimes the plus factor is more readily seen by the simple hearted. Myers tells the story of a mother who brought into her home - as a companion to her own son - a little boy who happened to have a hunchback. She had warned her son to be careful, not to refer to his disability. The boys were playing and after a few minutes she overheard her son say to his companion "Do you know what you have got on your back'?" The little boy was embarrassed, but before he could reply, his playmate continued "It is the box in which your wings are, and some day God is going to cut it open and then you will fly away and be an angel."

3. Often it takes a third eye or a change in focus, to see the plus factor. Walking along the corridors of a hospital recently where patients were struggling with fear of pain and tests, I was perturbed. What gave me a fresh perspective were the sayings put up everywhere, intended to uplift. One saying made me conscious of the beauty of the universe in the midst of pain, suffering and struggle. The other saying assured me that God was with me when I was in deep water and that no troubles would overwhelm me.

4. The import of those sayings also made me aware of the nectar springs that flow into people's lives when they touch rock bottom or are lonely or guilt ridden. The nectar springs make recovery possible, and they bring peace and patience in the midst of negative forces.

5. The forces of death and destruction are not so much physical as they are psychic and psychological. When malice, hatred and hard heartedness prevail, they get

channeled as forces of destruction. Where openness, peace and good heartedness prevail, the forces of life gush forth to regenerate hope and joy. The life force is triumphant when love overcomes fear. Both fear and love are deep mysteries, but the effect of love is to build, whereas fear tends to destroy. Love is generally the plus factor that helps build character. It creates bonds and its reach is infinite.

6. It is true there is no shortage of destructive elements - forces and people who seek to destroy others and in the process destroy themselves -- but at the same time there are signs of love and life everywhere that are constantly enabling us to overcome setbacks. So let's not look at gloom and doom - let us seek positivity and happiness. For it is when you seek that you will find what is waiting to be discovered

a. On the basis of your reading of the above passage, make notes on it in points only, using abbreviations, wherever necessary. Also suggest a suitable title. (4m)

b. Write a summary of the passage in not more than 80 words, using the notes you have made. (4m)

**SECTION – B**  
**WRITING SKILLS AND GRAMMAR (30 marks)**

**Q3.** You are going abroad. You want to sell your house, built three years ago. Draft an advertisement in not more than 50 words giving all the necessary details of the house and its locality. Contact no. 9812234567

**OR**

Your school is going to organise a Diwali Mela. Design a poster to inform the students about it. (50 words)

**Q4.** Everyday, newspapers scream of a new scam, a new scandal, a new case of corruption, arrest of officials taking bribe and what not. Write a letter to the editor of a national newspaper voicing your concern over the issue. (6marks)

**OR**

You are Raman/Rama librarian of Manav Rachna Public School. Write a letter to the publishing house for placing the order for books for the library. Invent all necessary details.

**Q5.** Write an article in about 150 - 200 words on the topic “Dealing with Rising Cyber Crime”. (10marks)

**OR**

In recent times there has been a sudden increase of tuition and coaching centres. Are they relevant and useful? Are they a blot on our education system? What are your views? Draft a speech in about 200 words.

**Q6. In the passage given below, there is an error in each line. Write the incorrect word and the correction against the correct blank number in your answer sheet. (3m)**

|                                            | <b>INCORRECT</b> | <b>CORRECT</b> |
|--------------------------------------------|------------------|----------------|
| Meanwhile to their dismay, we found that   | eg. Their        | Our            |
| after four hour of climbing up the wall    | (a)_____         | _____          |
| we are lost. No torches were allowed.      | (b)_____         | _____          |
| only later another two hours did           | (c)_____         | _____          |
| we find themselves on the top. We had four | (d)_____         | _____          |
| hours to sleep. We have to reach the next  | (e)_____         | _____          |
| village in the day break .It was cold, two | (f)_____         | _____          |
| of the boys produced the woolen shawls of  |                  |                |
| The bags.                                  |                  |                |

**Q7. Fill in the blanks with suitable determiners:\_(3 marks)**

1. \_\_\_\_\_ Equator divides \_\_\_\_\_ Earth into two hemispheres.
2. Andaman and Nicobar islands is \_\_\_\_\_ union territory.
3. Ms. Dixit came for \_\_\_\_\_ interview in \_\_\_\_\_ afternoon.
4. We have a small gathering at our house \_\_\_\_\_ Sunday.

### **SECTION – C LITERATURE (30 marks)**

**Q9. Read the extract given below and answer (any two) of the questions that follow in one or two lines only. (1x2=2)**

“See Betty and Dolly,” she’d say, “and look how they dressed us for the beach.” The sea holiday was her past, mine is her laughter.

- (a) Who were Betty and Dolly?
- (b) How did ‘she’ respond whenever she looked at the snapshot?
- (c) Why is the mother’s laughter ‘past’ for the narrator?

**Q10. Answer any three of the following in about 30 – 40 words: (2x5=10)**

- (a) What were the funerary treasures of king Tut and why were they said to be the richest royal collection?
- (b) How was emperor’s view different from the view of the painter Wu Daozi?
- (c) Sue was a brave girl. Give evidence to prove the statement.
- (d) Why could not Aram believe that Mourad had stolen the horse?
- (e) How did professor Gitonde meet with an accident? How did it affect him?
- (f) What happened to the painter when he entered the cave?

**Q11. Answer the following in about 120 – 150 words: (6 marks)**

Khushwant Singh's grandmother was a person with strong values. Elucidate.

**OR**

How does the Chinese view of art differ from the European view? Illustrate your answer with examples.

**Q12. Answer the following in about 120 – 150 words: (6 marks)**

What prompted the boys to return the horse – family values or fear of being caught and punished? Give reasons in support of your answer.

**OR**

Though her mother's belongings were precious to her. The narrator decides to forget them and moves ahead in life. What valuable lessons can we learn from her decision to do so?

**Q13. Answer the following in about 120 – 150 words: (6 marks)**

What moral issues does Nani Palkhivala raise when he talks about unrestricted population growth and its impact on poverty?

**OR**

Describe Gangadharpant's journey in your own words. How can it be termed as an 'Adventure'?



**Half Yearly Examination**  
**Class - XI**  
**Subject - Mathematics**

**Time 3 hours**

**M.M:100**

**General Instructions:**

- Section A consists of 4 questions of 1 mark each.
- Section B consists of 8 questions of 2 marks each.
- Section C consists of 11 questions of 4 marks each.
- Section D consists of 6 questions of 6 marks each.

**Section A**

1. Write the interval in set builder form  
(i) (6,2) (ii) (-3,0)
2. Let  $A = \{1, 2\}$ ,  $B = \{3, 4\}$ . Write  $A \times B$  and how many subsets will  $A \times B$  have.
3. Solve  $5x - 3 < 3x + 1$  when  
(i)  $x$  is an integer. (ii)  $x$  is a Real number
4. Find the value of  $\sin 75^\circ$ .

**Section B**

5. If  $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9\}$ ,  $A = \{2, 4, 6, 8\}$  and  $B = \{2, 3, 5, 7\}$ , verify that  
(i)  $(A \cup B)' = A' \cap B'$  (ii)  $(A \cap B)' = A' \cup B'$
6. Define the function  $f: \mathbb{R} \rightarrow \mathbb{R}$  by  $y = f(x) = x^2$ ,  $x \in \mathbb{R}$ . what is domain and range of this function?
7. Find the value of trigonometric function  
(i)  $\sin(765^\circ)$  (ii)  $\tan \frac{19\pi}{3}$
8. Prove that  $1^2 + 2^2 + 3^2 + \dots + n^2 > n^2/3$ ,  $n \in \mathbb{N}$  by using PMI method.
9. Express the following in the form of  $a + ib$ :  
$$\frac{5 + \sqrt{2}i}{1 - \sqrt{2}i}$$
10. The marks obtained by a student of class XI in first and second terminal examination are 62 and 48 respectively. Find the minimum marks he should get in the annual examination to have an average at least 60 marks.
11. Find the mean deviation about the mean for the following data  

|       |   |    |    |    |    |
|-------|---|----|----|----|----|
| $x_i$ | 5 | 10 | 15 | 20 | 25 |
| $f_i$ | 7 | 4  | 6  | 3  | 5  |

12. Find the mean deviation about the median for the following data  
4, 7, 8,9,10,12,13,17

### Section C

13. In a committee, 50 people speak french, 20 speak spanish and 10 speak both Spanish and french. How many speak atleast one of these two languages?
14. Let  $f(x) = x^2$  and  $g(x) = 2x+1$  be two real function. Find  $(f+g)(x)$ ,  $(f-g)(x)$ ,  $(fg)(x)$ ,  $(\frac{f}{g})(x)$  at  $x=2$ .

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

16. Prove that  
 $1.2+2.3+3.4+\dots\dots\dots +n(n+1) = [\frac{n(n+1)(n+2)}{3}]$  by PMI Method.

17. Find the conjugate of  
$$\frac{(3-2i)(2+3i)}{(1+2i)(2-i)}.$$

18. Solve the following system of inequality graphically  
 $3x+4y \leq 60$   
 $X+3y \leq 30$   
 $x \geq 0, y \geq 0$

19. Find the mean deviation from the median for the following data:

|                 |      |       |       |       |       |       |
|-----------------|------|-------|-------|-------|-------|-------|
| Marks           | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 |
| Number of girls | 6    | 8     | 14    | 16    | 4     | 2     |

20. The longest side of a triangle is 3 times the shortest side and the third side is 2cm shorter than the longest side. If the perimeter of the triangle is atleast 61cm, find the minimum length of shortest side.
21. Find the mean and standard deviation using shortcut method
- |       |    |    |    |    |    |    |    |    |    |
|-------|----|----|----|----|----|----|----|----|----|
| $x_i$ | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 |
| $f_i$ | 2  | 1  | 12 | 29 | 25 | 12 | 10 | 4  | 5  |
22. If  $\sin x = \frac{3}{5}$ ,  $\cos y = \frac{-12}{13}$ , where x and y both lie in second quadrant, find the value of  $\sin(x+y)$ .
23. If  $x+iy = \frac{a+ib}{a-ib}$ , prove that  $x^2 + y^2 = 1$ .

**Section D**

24. If  $z_1 = 2-i$ ,  $z_2 = 1+i$ , find  $\left| \frac{z_1+z_2+1}{z_1-z_2+1} \right|$ .
25. In a survey of 60 people, it was found that 25 people read newspaper H, 26 read newspaper T, 26 read newspaper I, 9 read both H and I, 11 read both H and T, 8 read both T and I, 3 read all the three newspaper find
- (i) The number of people who read atleast one of the newspapers.
  - (ii) The number of people who read exactly one newspaper.
26. Find the range of the following functions
- (i)  $f(x) = 2-3x$ ,  $x \in \mathbb{R}, x > 0$ .
  - (ii)  $f(x) = x^2+2$ ,  $x$  is a real number.
  - (iii)  $f(x) = x$ ,  $x$  is a real number.
27. Prove that  $x^{2n} - y^{2n}$  is divisible by  $x + y$  using the principle of mathematical induction for all  $n \in \mathbb{N}$ .
28. Find the general solution of  $\sin x + \sin 3x + \sin 5x = 0$ .
29. Find the mean, variance and standard deviation using short cut method.

|                          |       |       |       |       |       |            |             |             |             |
|--------------------------|-------|-------|-------|-------|-------|------------|-------------|-------------|-------------|
| Height<br>In cm          | 70-75 | 75-80 | 80-85 | 85-90 | 90-95 | 95-<br>100 | 100-<br>105 | 105-<br>110 | 110-<br>115 |
| Number<br>Of<br>children | 3     | 4     | 7     | 7     | 15    | 9          | 6           | 6           | 3           |

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