APPENDIX
Name : Subject:
School:

Time : 3 Hours

Questions in PART A carries 2 marks each, in PART B 3 marks and in PART C 5 marks. Answer all the questions.

1. Establish a relation between oscillatory and periodic motions.

2. What is the phase difference between velocity and displacement of a particle executing simple harmonic motion?

3. Write the displacement equation representing the following conditions in a S.H.M. of amplitude 01 m, frequency 500 Hz. and initial phase 11/4.

4. Give examples for free vibrations.

5. Represent diagrammatically transverse and longitudinal waves.

6. Distinguish between free vibrations and forced vibrations.

7. Specify the areas where we can use the doppler effect.

8. What are the characteristics of a mechanical wave?

9. How much time does sound take to cross a field of 100m?

10. Name some devices which work on the principle of electromagnetic induction.

11. List the various losses in a transformer.

12. Write the formula for the efficiency of a transformer.
13. What is meant by resource?

14. Velocity of sound is independent of the frequency or wave length. Why?

15. What are the principles that are used to derive the equation for plane progressive wave.

16. Write the differences between step up transformer and step down transformer.

17. Explain how Fraunhofer lines would be used to study the Sun's atmosphere.

18. How will you differentiate a uniaxial crystal from a biaxial crystal.

19. In a common base transistor, current amplification factor is 95 Emitter current 1E=1 MA. Find the value of base current.

20. What is the principle used in the AC dynamo?

21. Draw the circuit diagram of an N-P-N junction transistor.

22. Mention the parts of C.R.O.

23. How will you produce a pure spectrum in the laboratory?

24. What is meant by quantum of electro-magnetic radiation?

25. What are radio isotopes? Give 2 examples.

26. Explain the term mass deject in an atom.

27. Nuclear forces are neither electro-static nor gravitational in nature. Why?

28. List the characteristics of progressive wave.

29. Why a plane diffraction grating cannot be used for diffraction of X-rays.

30. List the advantages of a negative feedback amplifier.
31. Describe the construction of pile of plates.

32. What are the photo-electrons? How are they produced from a metal surface?

33. What is the frequency of photo whose energy is 75 ev?
   \[ h = 6.63 \times 10^{-34} \text{ Js.} \]

34. Represent diagramatically damped and undamped oscillations.

35. Calculate the self-inductance of a coil of \( 10^3 \) turns if a current of 10 A produces a magnetic flux of \( .5 \) wb. through the coil.

PART C

36. Derive an expression for the current in an Ac circuit containing a expacitor.

37. On which principle does the photo electric cell work? How?

38. The velocity of sound in air at NTP is \( 330 \text{ ms}^{-1} \)
   Calculate the velocity when temperature rises to \( 90^\circ C \) and pressure is doubled.

39. Calculate the inductive reactance of a coil, if the current through it is 20MA, when the potential difference across it is 50 V?

40. State the number of protons and neutrons in each of the following nucleure.

\[
\begin{align*}
\text{Li} & \quad 3 & \quad 6 & \quad 32 & \quad 137 \\
\text{C} & \quad 6 & \quad 12 & \quad 32 & \\
\text{S} & \quad 16 & \quad 32 & \\
\text{Ba} & \quad 36 & \quad 32 & 
\end{align*}
\]
Name of the student: 

Subject: 

Name of the school: 

Read the following and answer. Take your time.

DIVERGENT PRODUCTION

1. A short story has been given in this test. Supply the story with suitable titles. Only intelligent and innovative titles will be given credit.

Eg. A person newly employed in a shop ordered 100 dozens of gloves as the rainy season was approaching. But he forgot to mention that they should be in pairs. Hence 100 dozens of left hand gloves alone are available in the shop today.

What title can we give it,

'The forgetful Manickam'.

'The great confuser'.

'The Hander's shop'.

'Only the left hand gloves'.

'The left hander'.

You can suggest other titles.

In the same way, suggest innovative titles for the following story.
One day some savages caught a saint. They compelled him to marry their princess. He was offered freedom if he agrees. The chance was clear: Marriage or death. He refused to marry and was burned alive.

2. A novel and a rare incident is given in this test. Imagine the results of this and list them out.

Eg. What will happen if there is a law prohibiting people from sleep.

1. There will be more work.
2. There is no need for an alarm or a clock.
3. There is no need for beds.
4. Lights should be on at night.
5. More power or fuel will be needed.

Mention some other results also.

In the same way, write down the result of the following incident.

One day, all the cows in the world die.

3. The name of an article is given in this test. List out the uses of that. The uses should be of different types.

Eg. Brick
The brick is useful to build schools, houses factories and colleges. But all of them are included in 'building'.

1. Building  
2. Cleaning the teeth  
3. To beat a dog  
4. To throw on others  
5. To pluck mangoes  
6. To make powder  
7. As a paper weight

Write other uses also the same way. Write the uses of the following:

"Cotton"

4. What are the ways in which the article given in this test can be used. The uses should be of different types.

Eg. "An empty tin"

1. For threatening
2. As a drum
3. As a circular disc
4. As a cooking vessel
Similarly, write the uses of the following:

"A match stick".

5. In this test, you have to write the names of things included in the group.

E.g. Minerals

Calcium, Phosphorous, Sulphur, Sodium, Potassium etc. in the same way, list out the following:

"Non conductors of electricity".

6. A few words are given in this test. Group them in various possible ways.

E.g. 1. Arrow 2. Honeybee 3. Crocodile 4) Fish


- based on habitat
1, 2, 5, 7 - seen in the air
3, 4, 6 - Seen in water
- living things
2, 3, 4, 7
- non-living things
1, 5, 6

What are the other possible groups?
Group the following in as many ways as possible.
1. Pen 2) Paper 3) Table 4) Pencil 5) Door

7. A word is given in this test. Write three synonyms for it.
Eg. Suffering, synonyms - pain, sadness, troubles
The same way, give three synonyms for the word 'joy'.

8. An incomplete sentence is given in this test.
Fill in using the antonym for one of the words in the sentence.
Eg. A _______ is to a cow as a man is to a woman.
We should understand that a bull is needed to a cow as a man is to a woman.

Fill in the following blank the same way.
_________ is to the Christians as Friday is to the Hindus

9. Write any six features common to the two things given below:
Eg. Apple - Orange
1. Both are circular
2. Both are sweet
3.
In the same way, write any six features common to the two things given below:

'frog - fish'

10. Four words are given in this test. Write a sentence containing all these words.

Eg. Try-read-first-pass.
Students should try to read and pass in first class.


11. Write a short story using the ten words given in this test.

Eg. Forest - lion - food - animals - assemble - hare
    well - look - big - died.

Now tell the story.

No The same way, write a story with the words given below.

fisherman - tortoise - bank - deep - king -
    palace - princess - beautiful - smell - happy.

12. A few words are given in this test. Explicate and name the concept developed in these words.

Eg. mouse - rat - pig - lion - cow - horse - elephant
They are animals. The mouse is small. The rat is big. The pig is bigger. The elephant is the biggest of all. Hence these words refer to the growth in the size of 2 animals. Explicate and name the following in the same way.

Century-decade-year-month-week-day-hour-second.

13. Write any four possible modes of doing the work given.

Eg. To convey information

1. We can write a letter

2. We can ring up.

3. We can draw a picture and show it.

4. We can advertise through the media.

Mention four ways of achieving the following:
"to be free from diseases"

14. A prompt is given in this test. Write a few words using that every word should be related to the previous word. The number of words written will be the score.

Eg. red

The sun is red in colour. Hence write the word 'sun' the sun sets in the west. 'sets' - It becomes cool:
We shall have tea. 'tea' - The members in the family assemble. 'Assemble'. Sun-sets-cool-tea-assemble.
The same way, write the related words for 'word' 'ain'

15. Two things are mentioned in this test. Write any five objects made using both of them.
paper - gum.
envelop - cap - crown - fan - kite
In the same way mention any five things made using a long stick - a short rope.

16. A picture is given in this test. Mention any six occupations or persons referred to by it.

Eg.

1. an electrical shop
2. a bright student
3. an electrical engineer
4. a manufacturer of electrical lamps
5. missionary.
In the same way, mention any six occupations or persons referred to by the following picture.

17. Certain objects have been grouped in this test based on specific qualities - Write down the members of the groups.
Volatile liquids.
Kerosene - petroleum gas - alcohol - petrol
In the same way, write words for the following:
'Solids soluble in water'

18. Write down any 5 problems arising out of the following:
Eg. A candle stick
Problems: 1. How to light it.
         2. Where to light it?
         3. How long will it burn?
         4. How to put it out.
         5. How to prevent the wax from melting down
Similarly, mention any five problems arising out of the following:
"A match box"
LEARNING - THINKING STYLES

NAME : 

CLASS:

SEX : 

NAME OF THE SCHOOL:

AGE : 

LOCATION OF THE SCHOOL:

1 Physics, Chemistry, Maths, Biology
2 Physics, Chemistry, Maths, Comp.Sc
3 Physics, Chemistry, Botany, Zoology

NOTE:

1) Each question has two statements. Read the two statements carefully and place a / in the space provided, against the statement which suits you.

2) In case, both the statements suit you place a / in the space provided, opposite to both the statements.

3) If none of them realtes you leave the place blank.

1) a) I wish to know the details of the matter which I have to do. 
    b) I wish that any matter which I want to know should be directly demonstrated before me

2) a) I can understand clearly the news shown by signs.
    b) I don't have much capacity to understand the signs. But I want to convey the matter which I think to others only through words. I believe that conveying the matter clearly through words by other is more reliable than conveyed by signs.

3 a) I wish to learn by listening what the teacher teaches.
    b) I feel pleasure in doing things personally by moving around inside the classroom.
4) a) I am accustomed to solve problems very playfully.
   b) I used to solve problems only after seriously analysing its pros and cons.

5) a) I use only proper materials to finish a job.
   b) I use whatever materials available to finish a job.

6) a) I wish to do things only after it is well planned.
   b) I used to do things which are not preplanned by changing the procedures in the course of time to suit the needs.

7) a) I wish to know anything by guess.
   b) I do not like to guess anything.

8) a) I wish to reveal my feelings only through common man's language.
    b) I wish to reveal my feelings through poems, songs, dances, paintings, etc.

9) a) I wish to know only the facts.
    b) I wish to understand the thoughts comprehensively.

10) a) I wish to analyse thoughts and understand them.
     b) I wish to understand the thoughts comprehensively.

11) a) I have the ability to solve the problems by analysing the cause and effect relationship.
     b) I have the capacity to solve problems only by utilising the feelings and emotions.
12) a) I wish to see things personally as well as to imagine them while solving problems.

b) I wish to analyse problems either by studying it deeply or referring to teachers.

13) a) I can study easily from the teachers who describe through words.

b) I can study easily from teachers who describe through signs and demonstration.

14) a) When I think or recollect things they take good shape in words.

b) When I think or recollect things if they are represented through pictures or scenes they take good form.

15) a) I wish to see anything in its complete form.

b) I wish to arrange the incomplete things and show it in a complete form.

16) a) I can understand anything with the help of knowledge.

b) I can understand anything by intuition.

17) a) I am an expert in studying things and particularly truths.

b) I am an expert in understanding facts in its perspective with a common view.

18) a) I keep in memory only those things which are learned with special attention.

b) I can kept in memory the truths and events which occurred around me.

19) a) I wish to read only the stories really happened.

b) I wish to read the stories which are formed out of imagination.
20) a) I will programme very playfully the things when I want to do.
    b) Dreaming is a method of amusement.
21) a) I like to study listening to light music.
    b) I like complete silence while studying.
22) a) I am more interested in copying and filling up the details.
    b) I am more interested in drawing the pictures of my thoughts, imaginations' and feelings.
23) a) It is an exciting experience to discover the new things.
    b) It is an exciting experience to make the existing things still superior.
24) a) I understand things by using the knowledge which I acquire through discovering things personally.
    b) I understand things by experimenting things.
25) a) I like to explain things by putting together the ideas one after another serially.
    b) I like to correlate the ideas one with another.
26) a) I have the capacity to recollect things which are described by words.
    b) I can recollect things by sounds.
27) a) I forget things which are to be done.
    b) I do not forget things which are to be done.
28) a) I like to write the contents of the lessons briefly.
    ——— the general ideas

[Notes: The text contains some repetition and appears to be a collection of statements or questions, possibly related to personal preferences or learning styles.]
ATTITUDE TOWARDS SCIENCE

NAME

SUBJECT

SCHOOL

INSTRUCTIONS:

Against each statement is given the symbol SA, A, U, D, and SD, representing Strongly Agree, Agree, Undecided or Uncertain, Disagree, and Strongly Disagree. You are requested to read each statement carefully and decide what you reaction is. Then mark your answer in the space provided against each statement by putting a tick ( ) mark above the appropriate symbol.

If you Strongly Agree put a tick ( ) mark over the symbol 'SA'
If you Agree, put a tick ( ) mark over the symbol 'A'
If you are Undecided or Uncertain, put a tick ( ) mark over the symbol 'U'
If you Disagree, put a tick ( ) mark over the symbol 'D'
If you Strongly Disagree, put a tick ( ) mark over the symbol 'SD'

1  It is not right to adopt straight methods to reach a favourable conclusion.
2  Since sodium chloride easily dissolves in water it can be inferred that all crystals soluble in water are sodium chloride.
3  The inference that during a solar eclipse that sun is being swallowed by a giant snake is true.
4  The nation that scientific progress is harmful rather than useful is wrong.
5  It is not a sign of a good science student to be curious when he is being taught about natural phenomena.
6  The excessive consumption of antibiotics is not good.
7  Remembering all the scientific facts contained in a text book is the sign of a good student of science.
8  The expenditure of money on school laboratories is not a national loss.
9  It is a sin to think differently from what our ancestors have taught us.
10 The destruction of forests does not affect human life considerably.
11 It is better to test the blood of brides and bridegrooms before marriage rather than examining the horoscopes.

12 What the majority of the people believe will always be correct.

13 It is the sign of a good science student to have doubts regarding science content.

14 Scientific methods of cultivation may lead to infertility of agricultural farms.

15 Superstitious beliefs stand as stumbling block in the path of human progress.

16 Since the use of electricity causes accidents, it is better to avoid its use.

17 Many things which are going to happen may be predicted with the help of science.

18 The reading of too many science books by the students will adversely affect their level of learning.

19 Scientists have discussed many truths which astrologers could not.

20 The statement of scientists that smoking is injurious to health is only to frighten smokers.
ATTITUDE TOWARDS PROBLEM SOLVING

1. I take decisions after deep thoughts even for silly problems.  SA A U D SD
2. Only intelligent persons can solve difficult problems.  SA A U D SD
3. I believe that information should be collected from other when I have to solve any problem.  SA A U D SD
4. The talent of a student should be duly recognized if he successfully conducts scientific experiment.  SA A U D SD
5. It is not a sign of a good scientist to encourage common people to act in accordance with scientific methods.  SA A U D SD
6. A people should participate in creative activity when he becomes a member of the school science club.  SA A U D SD
7. If much time is taken for the success of a scientific experiment there is nothing wrong in stopping it midway.  SA A U D SD
8. It is the duty of a scientist to suspend judgement until he gets relevant and reliable proof.  SA A U D SD
9. Through I may have doubts about the science lessons taught in the class, I do not try to clear it in the presence of other pupils in the class.  SA A U D SD
10. I usually try carefully to find out answers to problems, whatever complications it may have  SA A J D SD
11. One should have correct understanding and more than that patience for solving of problem.  SA A U D SD
12. I easily get tired when I have to face challenging problems.  SA A U D SD
13. When I can not find out answers to problems in science I copy answers from others  SA A U D SD
14. It is improper to declare the results of experiments and observations.  SA A U D SD
15. One should answer very carefully the questions in his lessons.  SA A U D SD
16. I have never tried to compare the answers I got from minor scientific experiments with that of the teachers.  SA A U D SD
17 When I am convinced that my answers are incorrect I am willing to correct them.

18 The short-cut method to get answers to problems is to learn them by heart.

19 Before finding a solution to a problem a person must examine whether the statements given in it are complete and relevant to the context.

20 It is not correct that scientists who have found answers to complicated science problems have made sacrifices.