



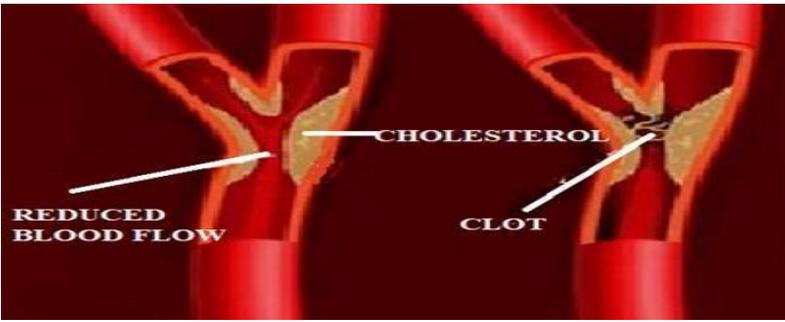
ST. PBN PUBLIC SCHOOL
SAMPLE QUESTION PAPER
CLASS XII
BIOLOGY (044)
TERM II (2021-22)

Max. Marks 35

Time allowed: 2 hours

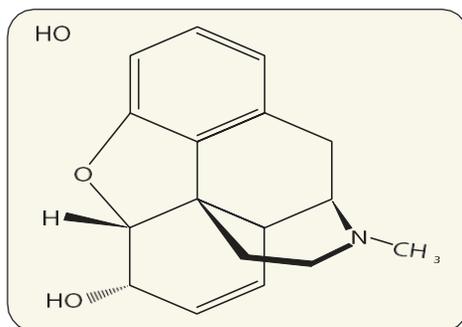
General Instructions:

- i) All questions are compulsory.
- ii) The question paper has three sections and 13 questions. All questions are compulsory.
- iii) Section–A has 6 questions of 2 marks each; Section–B has 6 questions of 3 marks each; and Section–C has a case-based question of 5 marks.
- iv) There is no overall choice. However, internal choices have been provided in some questions. A student has to attempt only one of the alternatives in such questions.
- v) Wherever necessary, neat and properly labeled diagrams should be drawn.

Q. No.		Marks
Section A		
1	Humans have innate immunity for protection against pathogens that may enter the gut along with food. What are the two barriers that protect the body from such pathogens?	2
	<p>A patient admitted in ICU was diagnosed to have suffered from myocardial infarction. The condition of coronary artery is depicted in the image below.</p> <p>Name two bioactive agents and their mode of action that can improve this condition.</p> <div style="text-align: center;"></div> <p>OR</p> <p>Substantiate by giving two reasons as to why a holistic understanding of the flora and fauna the cropland is required before introducing an appropriate biocontrol method.</p>	2

3

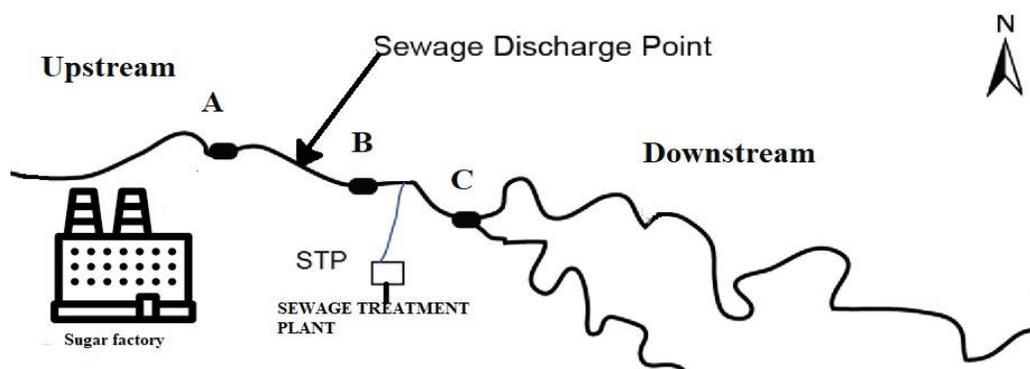
Identify the compound chemical structure is shown below. State any three of its physical properties.



2

4

Water samples were collected at points A, B and C in a segment of a river near a sugar factory and tested for BOD level. The BOD levels of samples A, B and C were 400 mg/L, 480 mg/L and 8 mg/L respectively. What is this indicative of? Explain why the BOD level gets reduced considerably at the collection point C?



2

5

An ecologist study an area with population A, thriving on unlimited resources and showing exponential growth, introduced population B and C to the same area. What will be the effect on the growth pattern of the population A, B and C when living together in the same habitat?

2

6

With the decline in the population of fig species it was noticed that the population of wasp species also started to decline. What is the relationship between the two and what could be the possible reason for decline of wasps?

OR

With the increase in the global temperature, the inhabitants of Antarctica are facing fluctuations in the temperature. Out of the *regulators* and the *conformers*, which of the two will have better chances of survival? Give two adaptations that support them to survive in the ambient environment? Give one suitable example.

2

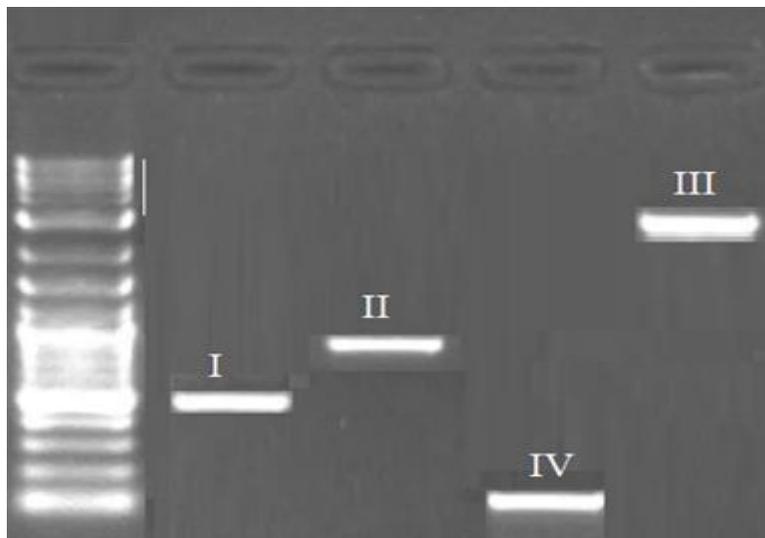
SECTION B

7	<p>How do normal cells get transformed into cancerous neoplastic cells? Elaborate giving three examples of inducing agent.</p> <p>OR</p> <p>A person is suffering from a high-grade fever. Which symptoms will help to identify if he/she is suffering from Typhoid, Pneumonia or Malaria?</p>	3
8	<p>Recognition of an antigenic protein of a pathogen or exposure to a pathogen occurs during many types of immune responses, including active immunity and induced active immunity.</p> <p>Specify the types of responses elicited when human beings get encountered by a pathogen.</p>	3
9	<p>In a pathological lab, a series of steps were undertaken for finding the gene of interest. Describe the steps, or make a flow chart showing the process of amplification of this gene of interest.</p>	3
10	<p>a. 'The Evil Quartet' describes the rates of species extinction due to human activities. Explain how the population of organisms is affected by fragmentation the habitats.</p> <p>b. Introduction of alien species has led to environmental damage and decline of indigenous species. Give any one example of how it has affected the indigenous species?</p> <p>c. Could the extinction of Steller's sea cow and passenger pigeon be saved by man? Give reasons to support your answer.</p>	3
11	<p>a. The image shown below is of a sacred grove found in India. Explain how has human involvement helped in the preservation of these biodiversity rich regions.</p> <div style="text-align: center;">  </div> <p>b. Value of Z (regression coefficient) is considered for measuring the species richness of an area. If the value of Z is 0.7 for area A ,and 0.15 for area B, which area has higher species richness and a steeper slope?</p>	3

12

The image below depicts the result of gel electrophoresis

3



If the ladder represents sequence length upto 3000 base pairs (bp),

- Which of the bands (I - IV) correspond to 2500 bp and 100 bp respectively?
- Explain the basis of this kind of separation and also mention the significance of this process.

SECTION C

13

Some restriction enzymes break a phosphodiester bond on both the DNA strands, such that only one end of each molecule is cut and these ends have regions of single stranded DNA. BamH1 is one such restriction enzyme which binds at the recognition sequence, 5'-GGATCC- 3' and cleaves these sequences just after the 5'- guanine on each strand.

5

- What is the objective of this action?
- Explain how the gene of interest is introduced into a vector.
- You are given the DNA shown below.

5' ATTTTGAGGATCCGTAATGTCCT 3'

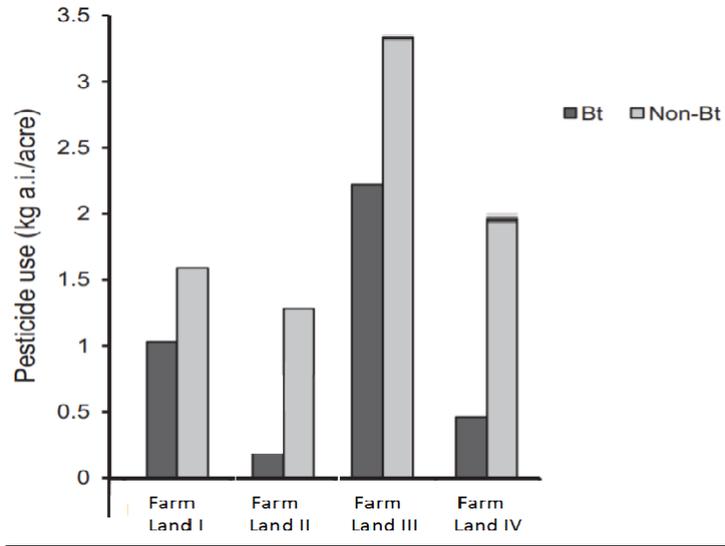
3' TAAACTCCTAGGCATTACAGGA 5'

If this DNA was cut with BamHI, how many DNA fragments would you expect? Write the sequence of these double-stranded DNA fragments with their respective polarity.

- A gene M was introduced into *E.coli* cloning vector PBR322 at BamH1 site. What will be its impact on the recombinant plasmids? Give a possible way by which you could differentiate non recombinant to recombinant plasmids.

OR

GM crops especially Bt crops are known to have higher resistance to pest attacks. To substantiate this an experimental study was conducted in 4 different farmlands growing Bt and non Bt-Cotton crops. The farm lands had the same dimensions, fertility and were under similar climatic conditions. The histogram below shows the usage of pesticides on Bt crops and non-Bt crops in these farm lands.



- Which of the above 4 farm lands has successfully applied the concepts of Biotechnology to show better management practices and use of agrochemicals? If you had to cultivate, which crop would you prefer (Bt or Non- Bt) and why?
- Cotton Bollworms were introduced in another experimental study on the above farm lands **wherein no pesticide was used**. Explain what effect would a Bt and Non Bt crop have on the pest.



ST. PBN PUBLIC SCHOOL
ANNUAL EXAMINATION
SAMPLE PAPER QUESTION TERM – II
CHEMISTRY THEORY (043)

MM:35

Time: 2 Hours

GENERAL INSTRUCTIONS:

Read the following instructions carefully.

1. There are **12** questions in this question paper with internal choice.
2. **SECTION A - Q. No. 1 to 3** are very short answer questions carrying 2 marks each.
3. **SECTION B - Q. No. 4 to 11** are short answer questions carrying 3 marks each.
4. **SECTION C- Q. No. 12** is case based question carrying 5 marks.

5. All questions are compulsory.

6. Use of log tables and calculators is not allowed

SECTION A

1. Arrange the following in the increasing order of their property indicated (any 2):
 - a. Benzoic acid, Phenol, Picric acid, Salicylic acid (pka values).
 - b. Acetaldehyde, Acetone, Methyl tert butyl ketone (reactivity towards NH_2OH).
 - c. ethanol, ethanoic acid, benzoic acid (boiling point) (1x2=2)
2. Solutions of two electrolytes 'A' and 'B' are diluted. The Λ_m of 'B' increases 1.5 times while that of A increases 25 times. Which of the two is a strong electrolyte? Justify your answer. Graphically show the behavior of 'A' and 'B'. (2)
3. Give reasons to support the answer:
 - a. Presence of Alpha hydrogen in aldehydes and ketones is essential for aldol condensation.
 - b. 3-Hydroxy pentan-2-one shows positive Tollen's test. (1x2=2)

SECTION B

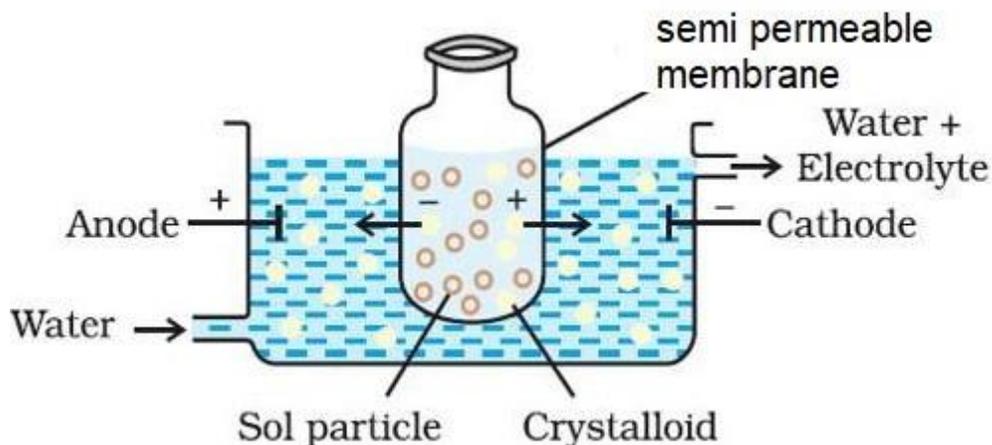
4. Account for the following:
 - a. Aniline cannot be prepared by the ammonolysis of chlorobenzene under normal conditions.
 - b. N-ethylethanamine boils at 329.3K and butanamine boils at 350.8K, although both are isomeric in nature.
 - c. Acylation of aniline is carried out in the presence of pyridine. (1x3=3)

OR

4. Convert the following:
- Phenol to N-phenylethanamide.
 - Chloroethane to methanamine.
 - Propanenitrile to ethanol. (1x3=3)
5. Answer the following questions:
- $[\text{Ni}(\text{H}_2\text{O})_6]^{2+}$ (aq) is green in colour whereas $[\text{Ni}(\text{H}_2\text{O})_4(\text{en})]^{2+}$ (aq) is blue in colour, give reason in support of your answer.
 - Write the formula and hybridization of the following compound:
tris(ethane-1,2-diamine) cobalt(III) sulphate (1+2)

OR

5. In a coordination entity, the electronic configuration of the central metal ion is $t_{2g}^3 e_g^1$
- Is the coordination compound a high spin or low spin complex?
 - Draw the crystal field splitting diagram for the above complex. (1+2)
6. Account for the following:
- Ti(IV) is more stable than the Ti (II) or Ti(III).
 - In case of transition elements, ions of the same charge in a given series show progressive decrease in radius with increasing atomic number.
 - Zinc is a comparatively a soft metal, iron and chromium are typically hard. (1x3=3)
7. An alkene 'A' (Mol. formula C_5H_{10}) on ozonolysis gives a mixture of two compounds 'B' and 'C'. Compound 'B' gives positive Fehling's test and also forms iodoform on treatment with I_2 and NaOH . Compound 'C' does not give Fehling's test but forms iodoform. Identify the compounds A, B and C. Write the reaction for ozonolysis and formation of iodoform from B and C. (3)
8. Observe the figure given below and answer the questions that follow:



- Which process is represented in the figure?

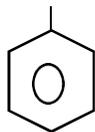
- b. What is the application of this process?
- c. Can the same process occur without applying electric field? Why is the electric field applied?

9. What happens when reactions:

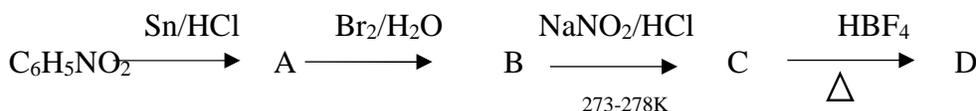
- a. N-ethylethanamine reacts with benzenesulphonyl chloride.
- b. Benzylchloride is treated with ammonia followed by the reaction with Chloromethane.
- c. Aniline reacts with chloroform in the presence of alcoholic potassium hydroxide. (1x3=3)

OR

9. a. Write the IUPAC name for the following organic compound:

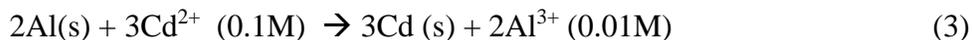


b. Complete the following:



(1x3=3)

10. Represent the cell in which the following reaction takes place. The value of E° for the cell is 1.260 V. What is the value of E_{cell} ?



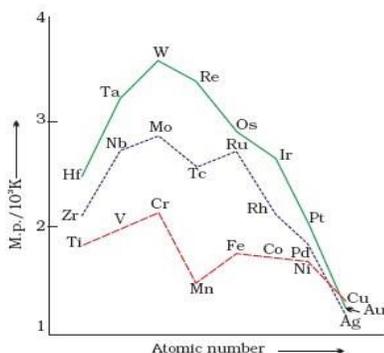
11. a. Why are fluorides of transition metals more stable in their higher oxidation state as compared to the lower oxidation state?

b. Which one of the following would feel attraction when placed in magnetic field: Co^{2+} , Ag^+ , Ti^{4+} , Zn^{2+}

c. It has been observed that first ionization energy of 5 d series of transition elements are higher than that of 3d and 4d series, explain why? (1x3=3)

OR

11. On the basis of the figure given below, answer the following questions:



(source: NCERT

- a. Why Manganese has lower melting point than Chromium?
- b. Why do transition metals of 3d series have lower melting points as compared to 4d series?
- c. In the third transition series, identify and name the metal with the highest melting point.

(1x3=3)

SECTION C

12. Read the passage given below and answer the questions that follow.

Are there nuclear reactions going on in our bodies?

There are nuclear reactions constantly occurring in our bodies, but there are very few of them compared to the chemical reactions, and they do not affect our bodies much. All of the physical processes that take place to keep a human body running are chemical processes. Nuclear reactions can lead to chemical damage, which the body may notice and try to fix.

The nuclear reaction occurring in our bodies is radioactive decay. This is the change of a less stable nucleus to a more stable nucleus. Every atom has either a stable nucleus or an unstable nucleus, depending on how big it is and on the ratio of protons to neutrons. The ratio of neutrons to protons in a stable nucleus is thus **around 1:1** for small nuclei ($Z < 20$). Nuclei with too many neutrons, too few neutrons, or that are simply too big are unstable. They eventually transform to a stable form through radioactive decay. Wherever there are atoms with unstable nuclei (radioactive atoms), there are nuclear reactions occurring naturally. The interesting thing is that there are small amounts of radioactive atoms everywhere: in your chair, in the ground, in the food you eat, and yes, in your body.

The most common natural radioactive isotopes in humans are carbon-14 and potassium-40. Chemically, these isotopes behave exactly like stable carbon and potassium. For this reason, the body uses carbon-14 and potassium-40 just like it does normal carbon and potassium; building them into the different parts of the cells, without knowing that they are radioactive. In time,

carbon-14 atoms decay to stable nitrogen atoms and potassium-40 atoms decay to stable calcium atoms. Chemicals in the body that relied on having a carbon-14 atom or potassium-40 atom in a certain spot will suddenly have a nitrogen or calcium atom. Such a change damages the chemical. Normally, such changes are so rare, that the body can repair the damage or filter away the damaged chemicals.

The natural occurrence of carbon-14 decay in the body is the core principle behind carbon dating. As long as a person is alive and still eating, every carbon-14 atom that decays into a nitrogen atom is replaced on average with a new carbon-14 atom. But once a person dies, he stops replacing the decaying carbon-14 atoms. Slowly the carbon-14 atoms decay to nitrogen without being replaced, so that there is less and less carbon-14 in a dead body. The rate at which carbon-14 decays is constant and follows first order kinetics. It has a half - life of nearly 6000 years, so by measuring the relative amount of carbon-14 in a bone, archeologists can calculate when the person died. All living organisms consume carbon, so carbon dating can be used to date any living organism, and any object made from a living organism. Bones, wood, leather, and even paper can be accurately dated, as long as they first existed within the last 60,000 years. This is all because of the fact that nuclear reactions naturally occur in living organisms.

(source: The textbook Chemistry: The Practical Science by Paul B. Kelter, Michael D. Mosher and Andrew Scott states)

- a. Why is Carbon -14 radioactive while Carbon -12 not? (Atomic number of Carbon: 6)
- b. Researchers have uncovered the youngest known dinosaur bone, dating around 65 million years ago. How was the age of this fossil estimated?
- c. Which are the two most common radioactive decays happening in human body?
- d. Suppose an organism has 20 g of Carbon -14 at its time of death. Approximately how much Carbon -14 remains after 10,320 years? (Given $\text{antilog } 0.517 = 3.289$)

OR

- d. Approximately how old is a fossil with 12 g of Carbon -14 if it initially possessed 32 g of Carbon -14? (Given $\log 2.667 = 0.4260$) (1+1+1+2)



St. PBN PUBLIC SCHOOL
Term II
CLASS XII
COMPUTER SCIENCE
(SUBJECT CODE-083)
SAMPLE PAPER

Time: 2 Hours

M.M:35

General Instructions

- The question paper is divided into 3 sections – A, B and C
- Section A, consists of 7 questions (1-7). Each question carries 2 marks.
- Section B, consists of 3 questions (8-10). Each question carries 3 marks.
- Section C, consists of 3 questions (11-13). Each question carries 4 marks.
- Internal choices have been given for question numbers 7, 8 and 12.

Section -A			
Each question carries 2 marks			
Q. No	Part No.	Question	Marks
1.		Write any two applications of Queue.	(2)
2.		What are DBMS Models?	(2)
3.		Write names of all DML commands in SQL	(2)
4.		A resultset is extracted from the database using the cursor object (that has been already created) by giving the following statement. Mydata=cursor . fetchone () (a) How many records will be returned by fetchone() method? (b) What will be the datatype of Mydata object after the given command is executed?	(2)

5.		<p>Write the output of the queries (a) to (d) based on the table, Furniture given below:</p> <p>Table: FURNITURE</p> <table border="1" data-bbox="363 298 1198 850"> <thead> <tr> <th>FID</th> <th>NAME</th> <th>DATEOFPURCHASE</th> <th>COST</th> <th>DISCOUNT</th> </tr> </thead> <tbody> <tr> <td>B001</td> <td>Double Bed</td> <td>03-Jan-2018</td> <td>45000</td> <td>10</td> </tr> <tr> <td>T010</td> <td>Dining Table</td> <td>10-Mar-2020</td> <td>51000</td> <td>5</td> </tr> <tr> <td>B004</td> <td>Single Bed</td> <td>19-Jul-2021</td> <td>22000</td> <td>0</td> </tr> <tr> <td>C003</td> <td>Long Back Chair</td> <td>30-Dec-2016</td> <td>12000</td> <td>3</td> </tr> <tr> <td>T006</td> <td>Console Table</td> <td>17-Nov-2019</td> <td>15000</td> <td>12</td> </tr> <tr> <td>B006</td> <td>Bunk Bed</td> <td>01-Jan-2021</td> <td>28000</td> <td>14</td> </tr> </tbody> </table> <p>(a) SELECT SUM(DISCOUNT) FROM FURNITURE WHERE COST>15000;</p> <p>(b) SELECT MIN(DATEOFPURCHASE) FROM FURNITURE;</p> <p>(c) SELECT * FROM FURNITURE WHERE DISCOUNT>5 AND FID LIKE "T%";</p> <p>(d) SELECT DATEOFPURCHASE FROM FURNITURE WHERE NAME IN ("Single Bed", "Console Table");</p>	FID	NAME	DATEOFPURCHASE	COST	DISCOUNT	B001	Double Bed	03-Jan-2018	45000	10	T010	Dining Table	10-Mar-2020	51000	5	B004	Single Bed	19-Jul-2021	22000	0	C003	Long Back Chair	30-Dec-2016	12000	3	T006	Console Table	17-Nov-2019	15000	12	B006	Bunk Bed	01-Jan-2021	28000	14	(2)
FID	NAME	DATEOFPURCHASE	COST	DISCOUNT																																		
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B006	Bunk Bed	01-Jan-2021	28000	14																																		
6.	(i)	Which command is used to delete all the records of a table?	(1)																																			
	(ii)	Give one point of difference between an equi-join and a natural join.	(1)																																			
7.		<p>Consider the table, MOVIEDETAILS given below:</p> <p>Table: MOVIEDETAILS</p> <table border="1" data-bbox="363 1709 1250 1820"> <thead> <tr> <th>MOVIEID</th> <th>TITLE</th> <th>LANGUAGE</th> <th>RATING</th> <th>PLATFORM</th> </tr> </thead> <tbody> <tr> <td>M001</td> <td>Minari</td> <td>Korean</td> <td>6</td> <td>Netflix</td> </tr> <tr> <td>M004</td> <td>MGR Magan</td> <td>Tamil</td> <td>3</td> <td>Hotstar</td> </tr> </tbody> </table>	MOVIEID	TITLE	LANGUAGE	RATING	PLATFORM	M001	Minari	Korean	6	Netflix	M004	MGR Magan	Tamil	3	Hotstar	(2)																				
MOVIEID	TITLE	LANGUAGE	RATING	PLATFORM																																		
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M010	Kaagaz	Hindi	2	Zee5
M011	Harry Potter and the Chamber of Secrets	English	6	Prime Video
M015	Uri	Hindi	1	Zee5
M020	Avengers: Endgame	English	2	Hotstar

- (a) Identify the candidate keys in table.
(b) Which field should be made the primary key? Justify your answer.

OR

- (a) Identify the alternate key(s) from the table **MOVIEDETAILS**.
(b) Consider the table **SCHEDULE** given below:

Table: SCHEDULE

SLOTID	MOVIEID	TIMESLOT
S001	M010	10 AM to 12 PM
S002	M020	2 PM to 5 PM
S003	M010	6 PM to 8 PM
S004	M011	9 PM to 11 PM

Which field will be considered as the foreign key if the tables **MOVIEDETAILS** and **SCHEDULE** are related in a database?

SECTION – B
Each question carries 3 marks

8. Mary has created a dictionary containing names and salary as key value pairs of 5 employees. Write a program, with separate user defined functions to perform the following operations:
- Push the keys (name of the employee) of the dictionary into a stack, where the corresponding value (salary) is greater than θ
 - Pop and display the content of the stack.
- For example:
If the sample content of the dictionary is as follows:

R={"DM":45, "JAYA":75, "BOBBY":90, "ALIA":76, "ANUJ":96, "OM":84}

The output from the program should be:
OM ANUJ BOBBY DM

OR

Alex has a list containing 10 integers. You need to help him create a program with separate user defined functions to perform the following operations based on this list.

- Traverse the content of the list and push the even numbers into a stack.
- Pop and display the content of the stack.

For Example:

If the sample Content of the list is as follows:

N=[12, 13, 34, 56, 21, 79, 98, 22, 35, 38]

Sample Output of the code should be:

38 22 98 56 34 12

9.	(i)	<p>A table, Tailor has been created in a database with the following fields: TCODE, TNAME, QTY, PRICE</p> <p>Give the SQL command to add a new field, DISCOUNT (of type Integer) to the Tailor table.</p>	(1)												
	(ii)	<p>What are Web services? Explain with help of examples.</p>	(2)												
10.		<p>Charu has to create a database named MYEARTH in MySQL. She now needs to create a table named CITY in the database to store the records of various cities across the globe. The table CITY has the following structure:</p> <p>Table: CITY</p> <table border="1" data-bbox="366 1542 1096 1804"> <thead> <tr> <th>FIELD NAME</th> <th>DATA TYPE</th> <th>REMARKS</th> </tr> </thead> <tbody> <tr> <td>CITYCODE</td> <td>CHAR(3)</td> <td>Primary Key</td> </tr> <tr> <td>CITYNAME</td> <td>CHAR(40)</td> <td></td> </tr> <tr> <td>SIZE</td> <td>INTEGER</td> <td></td> </tr> </tbody> </table>	FIELD NAME	DATA TYPE	REMARKS	CITYCODE	CHAR(3)	Primary Key	CITYNAME	CHAR(40)		SIZE	INTEGER		(3)
FIELD NAME	DATA TYPE	REMARKS													
CITYCODE	CHAR(3)	Primary Key													
CITYNAME	CHAR(40)														
SIZE	INTEGER														

AVGTEMP	INTEGER	
POLLUTIONRATE	INTEGER	
POPULATION	INTEGER	

Help her to complete the task by suggesting appropriate SQL commands.

Section C
Each question carries 4 marks

11.

Write queries (a) to (d) based on the tables **EMPLOYEE** and **DEPARTMENT** given below:

(4)

Table: EMPLOYEE

EMPID	NAME	DOB	DEPTID	DESIG	SALARY
120	Alisha	23- Jan- 1978	D001	Manager	75000
123	Nitin	10- Oct- 1977	D002	AO	59000
129	Navjot	12- Jul- 1971	D003	Supervisor	40000
130	Jimmy	30- Dec- 1980	D004	Sales Rep	
131	Faiz	06- Apr- 1984	D001	Dep Manager	65000

Table: DEPARTMENT

DEPTID	DEPTNAME	FLOORNO
D001	Personal	4
D002	Admin	10
D003	Production	1
D004	Sales	3

(a) To display the sum salary of all employees, department wise.

(b) To display name and respective department name of each employee whose salary is more than 60000.

		<p>(c) To display the names of employees whose salary is not known, in alphabetical order.</p> <p>(d) To display DEPTID from the table EMPLOYEE without repetition.</p>													
12.	(i)	<p>Explain the terms: Cookies , Firewall</p> <p style="text-align: center;">OR</p> <p>Define the following terms: Web page, MAC Address</p>	(2)												
	(ii)	<p>What are the components of Data Communication?</p>	(2)												
13.		<p>BeHappy Corporation has set up its new centre at Noida, Uttar Pradesh for its office and web-based activities. It has 4 blocks of buildings.</p> <div style="border: 1px solid black; padding: 10px; margin: 10px auto; width: fit-content;"> <p style="text-align: center;">BeHappy Corporation</p> <div style="display: flex; justify-content: space-around; align-items: center; height: 150px;"> <div style="border: 1px solid black; padding: 5px; text-align: center;">Block A</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">Block B</div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;"> <div style="border: 1px solid black; padding: 5px; text-align: center;">Block C</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">Block D</div> </div> </div> <p>Distance between the various blocks is as follows:</p> <table style="margin-left: 40px;"> <tr><td>A to B</td><td>40 m</td></tr> <tr><td>B to C</td><td>120m</td></tr> <tr><td>C to D</td><td>100m</td></tr> <tr><td>A to D</td><td>170m</td></tr> <tr><td>B to D</td><td>150m</td></tr> <tr><td>A to C</td><td>70m</td></tr> </table> <p>Numbers of computers in each block Block A - 25</p>	A to B	40 m	B to C	120m	C to D	100m	A to D	170m	B to D	150m	A to C	70m	(4)
A to B	40 m														
B to C	120m														
C to D	100m														
A to D	170m														
B to D	150m														
A to C	70m														

Block B - 50
Block C - 125
Block D - 10

- (a) Suggest and draw the cable layout to efficiently connect various blocks of buildings within the Noida centre for connecting the digital devices.
- (b) Suggest the placement of the following device with justification
- i. Repeater
 - ii. Hub/Switch
- (c) Which kind of network (PAN/LAN/WAN) will be formed if the Noida office is connected to its head office in Mumbai?
- (d) Which fast and very effective wireless transmission medium should preferably be used to connect the head office at Mumbai with the centre at Noida?



ST. PBN PUBLIC SCHOOL

SAMPLE QUESTION PAPER

TERM-II

PHYSICAL EDUCATION (048)

SESSION 2021-22(CLASS XII)

Max Marks: 35

Time: 2 hrs

General instructions:

1. There are three sections in the Question paper namely Section A, Section B and Section C.
2. Section A consists of 9 questions amongst which 7 questions have to be attempted each question carries 2 marks and should have 30-50 words.
3. Section B consists of 5 questions amongst which 3 questions have to be attempted each question carries 3 marks and should have 80-100 words.
4. Section C consists of 4 questions amongst which 3 questions have to be attempted each question carries 4 marks and should have 100-150 words.

(SECTION A)

- Q1. Explain any two benefits of ardha matsyendrasana. (1+1)
- Q2. Define explosive strength with help of example. (1+1)
- Q3. Define personality and motivation. (1+1)
- Q4. Write the full form of SPD and ASD. (1+1)
- Q5. List any four changes happening in the muscular system due to exercising. (0.5*4)
- Q6. What is the meaning of the Isotonic method and it is used for developing which ability. (1+1)
- Q7. Mention any two symptoms and causes of ADHD. (1+1)
- Q8. What is Laceration and how can it be managed? (1+1)
- Q9. List down any two strategies to make physical activities accessible for CWSN. (1+1)

(SECTION B)

- Q10. List down and briefly explain any four techniques of motivation. {1+(0.5*4)}
- Q11. Explain cognitive disability along with its symptoms. (1+2)
- Q12. Create a flowchart to explain classification of sports injuries. (1+1+1)

For visually impaired candidates

Explain classification of sports injuries. (1+1+1)

Q13. List down any three asanas used for preventing Asthma and write two benefits of each. (1+2)

Q14. What are the salient features of the Fartlek training method? (1*3)

(SECTION C)

- Q15. Explain any three personality types of Big five theory. (1+3)
- Q16. Discuss physiological factors determining speed. (1*4)
- Q17. Define flexibility and explain methods to develop flexibility. (1+3)
- Q18. Briefly explain the administration of Pawanmuktasana long with its contraindications and draw stick diagram. (2+1+1)



ST. PBN PUBLIC SCHOOL
TERM II
SAMPLE QUESTION PAPER
ENGLISH – CORE
CLASS-XII

Time allowed: 2 Hrs.

Maximum Marks: 40

General Instructions:

1. The Question Paper contains THREE sections-READING, WRITING and LITERATURE.
2. Attempt questions based on specific instructions for each part.

SECTION A – READING (14 marks)		Marks
1.	<p>Read the passage given below.</p> <p>I saw ‘<i>Jaws</i>’, the popular shark movie, the summer it came out, in 1975 and became paranoid about sharks. Though I kept swimming after <i>Jaws</i>, it was always with the vague fear that a shark’s teeth could tug on my leg at any moment. Never mind that there’d been only two shark bites since 1900 on the Connecticut coast, where I lived.</p> <p>5</p> <p>So, when I got this assignment for the <i>National Geographic</i> magazine, I decided to accept and do what I’d never wanted to do: swim with the sharks. I had to go to a place in the Bahamas known as Tiger Beach and dive with tiger sharks, the species responsible for more recorded attacks on humans than any shark except the great white. It was to be my first dive after getting certified—which meant it would be my first dive anywhere other than a swimming pool or a quarry—and without a diver’s cage. Most people who got wind of this plan thought I was either very brave or very stupid.</p> <p>10</p> <p>15</p> <p>But I just wanted to puncture an illusion. The people who know sharks intimately tend to be the least afraid of them, and no one gets closer to sharks than divers. The divers who run operations at Tiger Beach speak lovingly of the tiger sharks the way people talk about their children or their pets. In their eyes, these sharks aren’t man-eaters any more than dogs are.</p> <p>20</p> <p>25</p> <p>The business of puncturing illusions is never just black and white. My fellow divers had hundreds of dives under their belt and on the two-hour boat ride to the site in the morning of our first dive, they kept saying things like, “Seriously, I really can’t believe this is your first dive.” All this was okay with me until I reached the bottom and immediately had to fend off the first tiger shark, I had ever laid eyes on. However, when I watched the other divers feeding them fish and steering them gently, it became easy to see the sharks in a very benign light.</p> <p>30</p> <p>I think it would be unfair not to mention that though tiger sharks are apex predators. They act as a crucial balancing force in ocean ecosystems, constraining the numbers of animals like sea turtles and limit</p>	

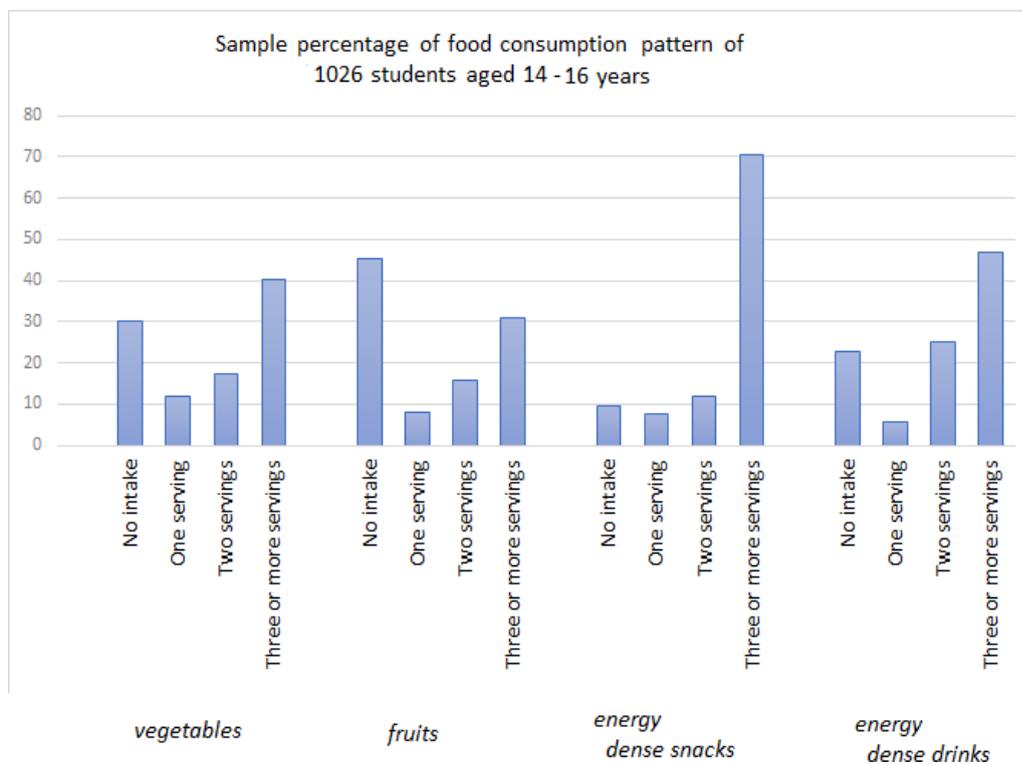
	<p>their behaviour by preventing them from overgrazing the sea grass beds. Furthermore, tiger sharks love warm water, they eat almost anything, have a huge litter and are the hardiest shark species. If the planet and its oceans continue to warm, some species will be winners and others will be losers, and tiger sharks are likely to be winners.</p> <p>Based on your understanding of the passage, answer <u>ANY EIGHT</u> questions from the nine given below.</p>	1*8
i.	Cite a point in evidence, from the text, to suggest that the writer's post- <i>Jaws</i> fear was not justified.	1
ii.	State any one trait of the writer that is evident from lines 5-10 and provide a reason for your choice.	1
iii.	People thought the writer was 'either brave or very stupid'. Why did some people think that he was 'very stupid'?	1
iv.	Why does the writer say that people who know sharks intimately tend to be least afraid of them?	1
v.	Rewrite the given sentence by replacing the underlined phrase with another one, from lines 10 – 20. <i>Some academicians think that reward, as a form of discipline, is a simple <u>right or wrong</u> issue.</i>	1
vi.	What does the use of the phrase 'benign light' suggest in the context of the writer's viewpoint about the tiger sharks?	1
vii.	Select a suitable phrase from lines 15-25 to complete the following sentence appropriately. <i>I agree the team will find this experience tough, but competing will be easier next time after they get this tournament_____.</i>	1
viii.	Apex predators serve to keep prey numbers in check. How can we say that tiger sharks are apex predators?	1
ix.	Analyse why having a large litter is one of the features that empowers tiger sharks to emerge winners if global warming persists.	1
2.	<p>Read the passage given below.</p> <p>Changing food preferences have brought about rapid changes in the structure of the Indian diet. The rapid proliferation of multinational fast-food companies and the influence of Western culture have replaced traditional home-cooked meals with ready-to-eat, processed foods thus increasing the risk of chronic diseases in urban Indians. Therefore, nurturing</p>	6

healthy eating habits among Indians from an early age would help to reduce health risks.

To date, little is known about the quality and quantity of foods and beverages consumed by urban Indian adolescents. This lack of evidence is a significant barrier to the development of effective nutrition promotion and disease prevention measures.

Therefore, a self-administered, semi-quantitative, 59-item meal-based food frequency questionnaire (FFQ) was developed to assess the dietary intake of adolescents. A total of 1026 students (aged 14–16 years) attending private, English-speaking schools in Kolkata completed the survey.

A sample percentage of the food consumption pattern is displayed (Fig. 1)



The survey results report poor food consumption patterns and highlights the need to design healthy eating initiatives. Interestingly, while there were no gender differences in the consumption of legumes and fried snacks, the survey found more females consumed cereals, vegetables and fruits than their male counterparts.

In conclusion, the report suggested that schools ought to incorporate food literacy concepts into their curriculum as they have the potential of increasing the fruit and vegetable intake in teenagers. Additionally, healthy school canteen policies with improved availability, accessibility, variety and affordability of healthy food choices would support the consumption of nutritious food in students.

	<p>Adapted from: https://nutritionj.biomedcentral.com/articles/10.1186/s12937-017-0272-3</p> <p>Based on your understanding of the passage, answer <u>ANY SIX</u> out of the seven questions given below.</p> <p>i. What does the researcher mean by ‘changing food preferences’? 1</p> <p>ii. Why was this survey on the food consumption of adolescents undertaken? 1</p> <p>iii. With reference to fig.1, write one conclusion about students' consumption of energy-dense drinks. 1</p> <p style="text-align: center;">FOR THE VISUALLY IMPAIRED CANDIDATES</p> <p>What do you understand by the term <i>food frequency</i>, as stated in lines 12-13?</p> <p>iv. What can be concluded by the ‘no intake’ data of fruit consumption versus energy dense snacks, with reference to fig.1? 1</p> <p style="text-align: center;">FOR THE VISUALLY IMPAIRED CANDIDATES</p> <p>Comment on the significance of incorporating food literacy concepts into student curriculum.</p> <p>v. There were no gender differences observed in the consumption of healthy foods, according to the survey. Substantiate. 1</p> <p>vi. Why is ‘affordability’ recommended as a significant feature of a school canteen policy? 1</p> <p>vii. Identify a word from lines 9 - 18 indicating that the questionnaire was specifically designed to be completed by a respondent without the intervention of the researcher collecting the data. 1</p>	<p>1*6</p>
	SECTION B – WRITING	8
3.	<p>You are Natasha, residing in Pune. Your cousin, from the same city is hosting your grandmother’s eightieth birth anniversary and has extended an invite to you. He has also requested your assistance for arrangements needed. Draft a reply of acceptance, in not more than 50 words.</p>	3
4.	<p>Attempt ANY ONE from A and B given below.</p> <p>A. You are Shantanu, residing at Ghar B-94, Balimela Road, Malkangiri. You come across the following classified advertisement in a local daily. Write a letter, in about 120-150 words, applying for the position of a volunteer for the <i>Each One Teach One</i> campaign.</p>	5

SITUATION VACANT

WANTED committed volunteers, aged 18 years and above, to teach underprivileged children, for one hour a week, in the district of Malkangiri. Ability to speak, read and write Odiya fluently, important. Experience not necessary. All volunteers to receive training. Contact Nethra N, Coordinator (*Each One Teach One*), *4Literacy*, Ambaguda, Malkangiri, Odisha -764045

OR

B. The efforts of 400 volunteers working with the NGO, *4Literacy*, in the district of Malkangiri, Odisha, was lauded by the District Collector, Shri V. Singh (IAS). As a staff reporter of 'The Odisha Bhaskar', write a report about this in 120-150 words covering all the details of the event, such as training, teaching and infrastructure involved in the '*Each One Teach One*' campaign, initiated by the district administration in association with the NGO.

SECTION C – LITERATURE

18

5.	Attempt ANY FIVE of the six questions given below, within 40 words each.	2x5=10
i.	A mistaken identity led to a discovery of a new one for the rattrap peddler. How did this impact him?	2
ii.	As the host of a talk show, introduce Rajkumar Shukla to the audience by stating any two of his defining qualities. You may begin your answer like this: <i>Meet Rajkumar Shukla, the man who played a pivotal role in the Champaran Movement. He</i>	2
iii.	Adrienne Rich chose to express her silent revolt through her poem, <i>Aunt Jennifer's Tigers</i> , just as Aunt Jennifer did with her embroidery. Explain.	2
iv.	Rationalize why Keats uses the metaphor 'an endless fountain of immortal drink' in his poem, <i>A Thing of Beauty</i> .	2
v.	How do you think Derry's mother contributes to his sense of alienation and isolation? (<i>On the Face of It</i>)	2
vi.	Validate John Updike's open-ended title, ' <i>Should Wizard Hit Mommy?</i> '.	2
6.	Answer ANY TWO of the following in about 120-150 words each.	4*2
i.	How does Keats' poem, <i>A Thing of Beauty</i> appeal richly to the senses, stimulating the reader's inner sight as well as the sense of touch and smell? Write your answer in about 120-150 words.	4

ii.	Colin Dexter, the author of <i>Evans Tries an O-level</i> employs the red herring technique of intentionally misleading readers by placing false clues to keep the plot enigmatic. Substantiate with reference to text, in about 120-150 words.	4
iii.	Biographies include features of non-fiction texts – factual information and different text structures such as description, sequence, comparison, cause and effect, or problem and solution. Examine <i>Indigo</i> in the light of this statement, in about 120-150 words.	4



ST. PBN PUBLIC SCHOOL

SAMPLE QUESTION PAPER

CLASS XII

PHYSICS THEORY

TERM II

MM : 35

TIME : 2 Hours

General Instructions:

- (i) There are 12 questions in all. All questions are compulsory.
- (ii) This question paper has three sections: Section A, Section B and Section C.
- (iii) Section A contains three questions of two marks each, Section B contains eight questions of three marks each, Section C contains one case study-based question of five marks.
- (iv) There is no overall choice. However, an internal choice has been provided in one question of two marks and two questions of three marks. You have to attempt only one of the choices in such questions.
- (v) You may use log tables if necessary but use of calculator is not allowed.

SECTION A

- Q1.** In a pure semiconductor crystal of Si, if antimony is added then what type of extrinsic semiconductor is obtained. Draw the energy band diagram of this extrinsic semiconductor so formed.
- Q2.** Consider two different hydrogen atoms. The electron in each atom is in an excited state. Is it possible for the electrons to have different energies but same orbital angular momentum according to the Bohr model? Justify your answer.

OR

Explain how does (i) photoelectric current and (ii) kinetic energy of the photoelectrons emitted in a photocell vary if the frequency of incident radiation is doubled, but keeping the intensity same? Show the graphical variation in the above two cases.

- Q3.** Name the device which converts the change in intensity of illumination to change in electric current flowing through it. Plot I-V characteristics of this device for different intensities. State any two applications of this device.

SECTION B

- Q4.** Derive an expression for the frequency of radiation emitted when a hydrogen atom de-excites from level n to level $(n - 1)$. Also show that for large values of n , this frequency equals to classical frequency of revolution of an electron.
- Q5.** Explain with a proper diagram how an ac signal can be converted into dc (pulsating)signal with output frequency as double than the input frequency using pn junction diode. Give its input and output waveforms.
- Q6.** How long can an electric lamp of 100 W be kept glowing by fusion of 2 kg of deuterium? Take the fusion reaction as
- $${}^2_1\text{H} + {}^2_1\text{H} \rightarrow {}^3_2\text{He} + n + 3.27 \text{ MeV}$$
- Q7.** Define wavefront. Draw the shape of refracted wavefront when the plane incident wave undergoes refraction from optically denser medium to rarer medium. Hence prove Snell's law of refraction.

- Q8.** (a) Draw a ray diagram of compound microscope for the final image formed at least distance of distinct vision?
- (b) An angular magnification of 30X is desired using an objective of focal length 1.25 cm and an eye piece of focal length 5 cm. How will you set up the compound microscope for the final image formed at least distance of distinct vision?

OR

- (a) Draw a ray diagram of Astronomical Telescope for the final image formed at infinity.
- (b) A small telescope has an objective lens of focal length 140 cm and an eyepiece of focal length 5.0 cm. Find the magnifying power of the telescope for viewing distant objects when
- (i) the telescope is in normal adjustment,
- (ii) the final image is formed at the least distance of distinct vision.
- Q9.** Light of wavelength 2000 \AA falls on a metal surface of work function 4.2 eV.
- (a) What is the kinetic energy (in eV) of the fastest electrons emitted from the surface?
- (b) What will be the change in the energy of the emitted electrons if the intensity of light with same wavelength is doubled?
- (c) If the same light falls on another surface of work function 6.5 eV, what will be the energy of emitted electrons?

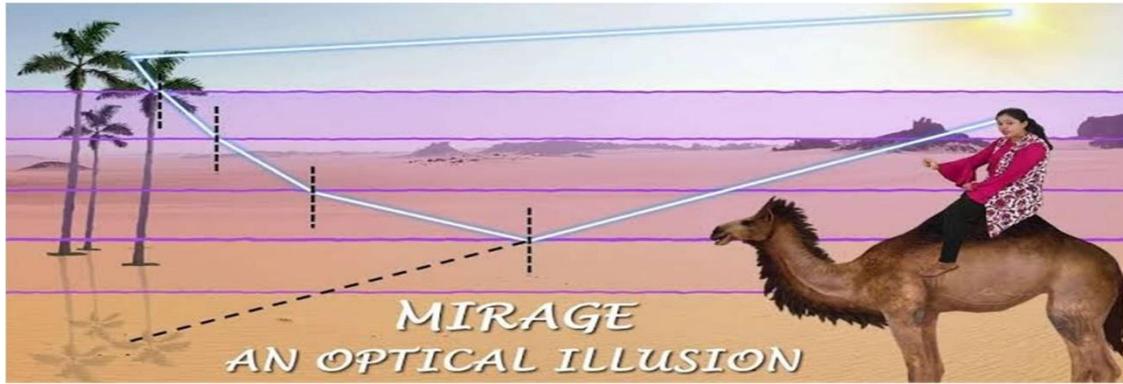
- Q10.** The focal length of a convex lens made of glass of refractive index (1.5) is 20 cm. What will be its new focal length when placed in a medium of refractive index 1.25 ? Is focal length positive or negative? What does it signify?

- Q11.** (a) Name the e.m. waves which are suitable for radar systems used in aircraft navigation. Write the range of frequency of these waves.
- (b) If the Earth did not have atmosphere, would its average surface temperature be higher or lower than what it is now? Explain.
- (c) An e.m. wave exerts pressure on the surface on which it is incident. Justify.

OR

- (a) "If the slits in Young's double slit experiment are identical, then intensity at any point on the screen may vary between zero and four times to the intensity due to single slit". Justify the above statement through a relevant mathematical expression.
- (b) Draw the intensity distribution as function of phase angle when diffraction of light takes place through coherently illuminated single slit.

- Q12. CASE STUDY: MIRAGE IN DESERTS**



To a distant observer, the light appears to be coming from somewhere below the ground. The observer naturally assumes that light is being reflected from the ground, say, by a pool of water near the tall object.

Such inverted images of distant tall objects cause an optical illusion to the observer. This phenomenon is called mirage. This type of mirage is especially common in hot deserts.

Based on the above facts, answer the following questions:

(a)	Which of the following phenomena is prominently involved in the formation of mirage in deserts?		1
	(i) Refraction, Total internal Reflection	(ii) Dispersion and Refraction	
	(iii) Dispersion and scattering of light	(iv) Total internal Reflection and diffraction.	
(b)	A diver at a depth 12 m inside water ($n_w = \frac{4}{3}$) sees the sky in a cone of semi- vertical angle		1
	(i) $\sin^{-1} \frac{4}{3}$	(ii) $\tan^{-1} \frac{4}{3}$	
	(iii) $\sin^{-1} \frac{3}{4}$	(iv) 90°	
(c)	In an optical fibre, if n_1 and n_2 are the refractive indices of the core and cladding, then which among the following, would be a correct equation?		1
	(i) $n_1 < n_2$	(ii) $n_1 = n_2$	
	(iii) $n_1 \ll n_2$	(iv) $n_1 > n_2$	
(d)	A diamond is immersed in such a liquid which has its refractive index with respect to air as greater than the refractive index of water with respect to air. Then the critical angle of diamond-liquid interface as compared to critical angle of diamond -water interface will		1
	(i) depend on the nature of the liquid only	(ii) decrease	
	(iii) remain the same	(iv) increase.	
(e)	The following figure shows a cross-section of a 'light pipe' made of a glass fiber of refractive index 1.68. The outer covering of the pipe is made of a material of refractive index 1.44. What is the range of the angles of the incident rays with the axis of the pipe for the following phenomena to occur.		1

	(i) $0 < \alpha < 90^\circ$	(ii) $0 < \alpha < 60^\circ$
	(iii) $0 < \alpha < 45^\circ$	(iv) $0 < \alpha < 30^\circ$