QUESTION PAPER 2017

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MSBSHSE Class 10 English 2017 Question Paper Solutions

(Reading skill, Vocabulary and Grammar)

Q. 1 (A) Read the below given passage and do the activities: [10 Marks]

A. 1 True or False:

Say whether the given statements are true or false:

(i) Gilson asked the writer to buy a tie of red colour with an initial "G" on it.

Answer: False.
Gilson asked to buy a tie, of any colour but with a small embroidered G on it.

(ii) The writer could not buy the tie on Sunday because he had no time.

Answer: False
The writer could not buy the tie on Sunday because the shops were closed.

(iii) The driver refused to wait as parking was prohibited.

Answer: True

The driver refused to wait. Parking was prohibited, he said.

(iv) The writer promised to double the fare.

Answer: True.

I promised to double the fare, jumped out and ran into the shop.

What Gilson asked me to buy was, in fact, a little thing: a tie. But not just any tie. He wanted a tie with a small embroidered G. Any colour would do, as long as it had his initial. Look, this is a special flight, I explained. We are only staying Saturday through Tuesday. On the day we arrived Ididn't have time to think about the tie, but strolling around on Sunday, I did see ties bearing various letters in more than one shop window. They were cheap, just a dollar, but all the shops were closed.

Frantic search: On Monday, lunch lasted the whole afternoon. Then, it was Tuesday morning, time to leave. It was only when I saw our airport bus waiting outside the hotel that I rememberedthe tie.

I told the group to go on. I would get a taxi to the airport. And so I went in search of a nearbyshop where I had seen ties.

But, I couldn't find it. I walked further down the street- one, two, three blocks- all in vain. Back atthe hotel, a bit anxious now, I took my suitcase, got a taxi and asked the driver to rush to the street where I had seen them.

The driver stopped at each shop we passed, so I could look from the taxi window. The stores hadall sorts of ties, but not the kind I was looking for.

When I finally thought I had located the right shop, I decided to go in and check. The driver refused to wait. Parking was prohibited, he said. I promised to double the fare, jumped out andran into the shop. Was I going to miss the plane, just for a damned tie?

A 2. Order **(2)**

Put the sentences given below in the correct order:

(i) On the very first day, the writer had no time to buy a tie.
(ii) The writer walked down on Sunday and saw shops with a variety of ties.
(iii) Gilson, the writer's friend wanted him to buy a tie.
(iv) The writer left the place on Tuesday morning.

Answer: Find below the statements in the correct order
(iii) Gilson, the writer's friend wanted him to buy a tie.
(i) On the very first day, the writer had no time to buy a tie.
(ii) The writer walked down on Sunday and saw shops with a variety of ties.
(iv) The writer left the place on Tuesday morning.

A 3. Matching:
Match the given words with its meaning from below:

'A'	**'B'**
(i) strolling	**(a) done in a very urgent way**
(ii) anxious	**(b) to walk without hurrying**
(iii) prohibited	**(c) wanting something very much**
(iv) frantic	**(d) to stop something**

Answer:

'A'	**'B'**
(i) strolling	(b) to walk without hurrying
(ii) anxious	(c) wanting something very much
(iii) prohibited	(d) to stop something
(iv) frantic	(a) done in a very urgent way

A 4. Language study: Begin your sentence with_____ (2)

(i) I had located the right shop.
(Rewrite the sentence beginning with "The right

shop_____")Answer: The right shop was

located by me**.**

(ii) All the shops
were closed. (Begin
with "None of the_____)

Answer: None of the shops were open**.**

A 5. Personal Response: (2)
Narrate any one funny/ humorous incident that took place

in your life.Answer: Activity to be done by the students.

(B) Read the given passage and do the activities as instructed:

[10 Marks]B 1. Complete:
Fill in the blanks to complete the sentences mentioned below:

(i) I was able to read_____by the time I was ten.
Answer: I was able to read Shakespeare by the time I was ten**.**

(ii) It was Mr. A.N. Patil my_____teacher who made a huge impression on me.
Answer: It was Mr. A.N. Patil, my Marathi and Hindi teacher who made a huge impression on me.

(iii) Every lesson that Mr. Patil took was spiced with half a dozen or more_____
Answer: Every lesson that Mr. Patil took was spiced with half a dozen or more anecdotes from a wide variety of subjects: among them History, Politics, Religion, and Sociology.

(iv) One of the greatest gifts any teacher can give a student is to inculcate_____
Answer: One of the greatest gifts any teacher can give a student is to inculcate a curiosity to learn

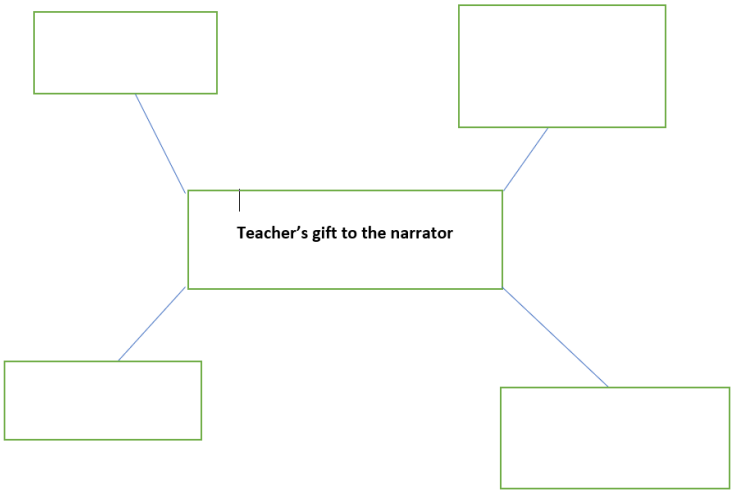
In a way, one of the greatest gifts any teacher can give a student, I think, is to inculcate acuriosity to learn.
I've been incredibly lucky to have at least one such teacher at every stage in my life. The first was Mrs. Rowlands who taught me in primary school. She taught me to read without ever pushing me. She made me want to read more by giving me some of the most interesting children's books available. And although I still love to go back to those books from time to time,it was only because of her that I was able to read Shakespeare by the time I was ten, and Chaucer a year later.

In later years, it was Mr. A.N. Patil, my Marathi and Hindi teacher who made a huge

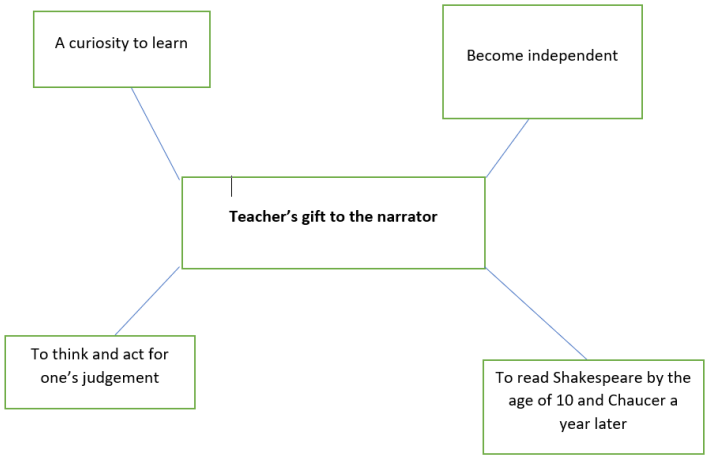
impression onme. Every lesson he took was spiced with half a dozen or more anecdotes from a wide variety of subjects: among them History, Politics, Religion, and Sociology. I was, and still am in awe of his knowledge, which despite rather desperate attempts, I doubt I'll ever be able to match.

There have also been other teachers who helped me to try to become independent: to think andact for myself using my own judgement, which to my mind has been just as, if not more important, than actually learning anything. After all, it's much too easy to become a completely useless repository of facts and little else.

B 2. Web:
Complete the following web:



Answer:



B 3. Match:

Match the words in the column A with the corresponding meanings given in column B:

'A'	'B'
(i) Inculcate	**(a) very sad and upset because of loss of hope**
(ii) Incredibly	**(b) a person with a lot of information**
(iii) Desperate	**(c) extremely good, great**
(iv) Repository	**(d) to teach and impress by frequent repetition**

Answer:

'A'	'B'
(i) Inculcate	(d) to teach and impress by frequent repetition
(ii) Incredibly	(c) extremely good, great
(iii) Desperate	(a) very sad and upset because of loss of hope
(iv) Repository	(b) a person with a lot of information

B4. Frame Questions:

Frame WH- questions for the following statements with the help of the "Wh" word given in thebrackets:

(i) She taught me to

read. (What)Answer:

What did she teach

you?

(ii) I read Chaucer a year later. (When)Answer: When did you read Chaucer?

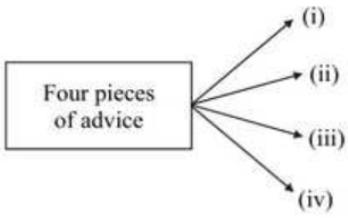
B5. Personal Response
"Teachers are responsible for moulding the character of students."Elaborate giving your opinion.

Answer: Teachers often influence every student. They act as the guiding light for the students in the formative years of their lives. Teachers can easily mould the students and

help in shaping their future. The students usually imbibe in their daily lives what they learn from their teachers. Some teachers havehelped students become independent: to think and act for themselves using their judgement, which hasbeen just as, if not more important, than actually learning anything.

Q 2. Read the following passage and answer as instructed:

[10 Marks]A1. Chart:
Write down four pieces of advice given by the writer:



Answer: (i) Do the exercises
(ii) Take a brisk half an hour walk, at least thrice a week
(iii) Vary the type of exercise you do
(iv) Be careful not to overdo exercise

Exercise makes you focus on your body, providing relief from difficult feelings and thoughts. If you workout hard enough, it releases chemicals called endorphins, which may act in the brain to help lift your mood.
If you haven't taken exercise, start simply with a brisk half-hour walk at least three times a week. Once inthe habit of exercising, consider something more strenuous, such as aerobic dance. Activities that you share with other people, such as tennis or team games, may be preferable to solitary forms of exercise, such as swimming, which leaves your mind free to dwell on negative thoughts. Vary the type of exercise you do, and don't choose something you don't enjoy at all. Be careful not to overdo exercise, or you will merely feel exhaustion instead of increased energy and improved well-being.

BEFORE YOU JOIN A GYM

Potentially, the world is your work-out facility. But, if you want access to high-quality resistance machines, aerobic-classes, and trained staff, a gym may be worth the money, especially if it helps youstick with an exercise program.

A 2. Effects:
Look at the activities given in column "A" of the table. Give their effects in column "B":

'A'	'B'
(i) Regular Exercise	
(ii) Hard workout	
(iii) Swimming	
(iv) Over straining exercise	

Answer:

'A'	'B'

(i) Regular Exercise	relief from difficult feelings and thoughts
(ii) Hard workout	releases chemicals called endorphins
(iii) Swimming	leaves the mind free to dwell on negative thoughts
(iv) Over straining exercise	a feeling of exhaustion

A3. Complete the following table and frame a sentence of your own by choosing any word fromthe table:

Verb	**Noun**	**Adjective**
Pay	**Payment**	_____
Consider	_____	**Considerable**

Answer:

Verb	**Noun**	**Adjective**
Pay	Payment	Paid/Payable
Consider	Consideration	Considerable

He is the world's highest paid painter.

A4. Language study:
Select the proper tag and re-write the sentence;

(i) It helps you to stick with an exercise.(1. do it? 2. does it? 3. doesn't it?). Answer: 3. doesn't it?
It helps you to stick with an exercise, doesn't it?

(ii) Be careful not to overdo exercise. (1. won't you? 2. will you? 3. be you?)

Answer: 2. will you?
Be careful not to overdo exercise, will you?

A5. My opinion:
It is necessary to exercise regularly.
Write your opinion in support of the given statement.

Answer: Exercise releases endorphins, which acts in the brain and helps to lift your mood. You also tend to sleep better if you exercise. It helps to relieve your stress and low self-esteem. It also provides

relief from difficult feelings and thoughts. Exercising regularly also reduces some diseases such as type2 diabetes, high blood pressure and more.

(B) Read the following passage carefully and do the activities:

[10 Marks]B1. MCQ
Complete the following sentence by selecting from the multiple choice given below:

(i) The luxury cars have largely gone_____from its roads.
a. missing
b. disappointing
c. hiding
d. dislocating

Answer: (a) missing
The luxury cars have largely gone missing from its roads.

(ii) A few luxury car owners have_____their other not so premium cars.
a. switched off
b. switched to
c. switched away
d. insurance

Answer: (b) switched to
A few luxury car owners have switched to their other not so premium cars.

(iii) The car owners get the standard_____of a company.
(a) guarantee
(b) certainty
(c) warranty
(d) insurance

Answer: (c) warranty
The car owners get the standard warranty of a company,

(iv) Many owners_____their decision to buy the premium car due to the pitiable condition.
a. regretted
b. favoured
c. accepted
d. expected

Answer: (a) regretted
Many owners regretted their decision to buy the premium car due to the pitiable condition.

Potholes Keep Luxury Cars Indoors
(Newspaper Reporter)

Three years after the city vroomed to global fame when it picked up 150 luxury cars in a

record bulk deal, the cars have largely gone missing from roads, parked as they are in the safety of their

owners' garages. Fearing damage and dents to their dream drives, the owners said they couldnot risk them on the potholed city roads.
Many owners said they regretted their decision to buy these premium buys as the pitiable condition of roads has ensured they cannot take their cars out for their commute to work or simply spin around town. A few owners have switched to their other not-so-so premium cars in their fleet for their daily commute, while a couple of them have already sold their high-end luxurycruisers. Some owners are negotiating an extended warranty period with the auto giant.
As per the star agreement, the cars get a free service once a year or 15,000kms, for three years. They also get the standard warranty of a company that covers most of the car's maintenance, butparts like tyres are not covered, like is the case with most auto brands.
A car owner said that he carefully picks the road he would drive his car on, even if it meanstaking a longer route to reach the destination.

B2. Give reasons:
Give reasons justifying the following statements:
(i) The luxury car owners have parked their vehicles in a garage because_____
Answer: the cars have largely gone missing from roads.

(ii) The luxury car owners regret their decision of buying luxury cars becasue_____
Answer: the pitiable condition of roads has ensured they cannot take their cars out for their commute towork or simply spin around town.

(iii) Many luxury car owners have sold out their cars because_____
Answer: they cannot take their cars out for their commute to work or simply spin around town.

(iv) The car owners take longer route because _____
Answer: parts like tyres are not covered in standard warranty, so car owners carefully pick the road hewould drive his car on.

B3. Word register:
Prepare a word register relating automobile industry:

Answer: 1. Garage
2. Mileage
3. Fuel
4. Capacity
5. Engine
6. Torque
7. Cylinders
8. Gearbox
9. Suspension
10. Alloy Wheel

B4. Language Study:
Change the following into direct speech:
Many owners said they regretted their decision to buy the premium

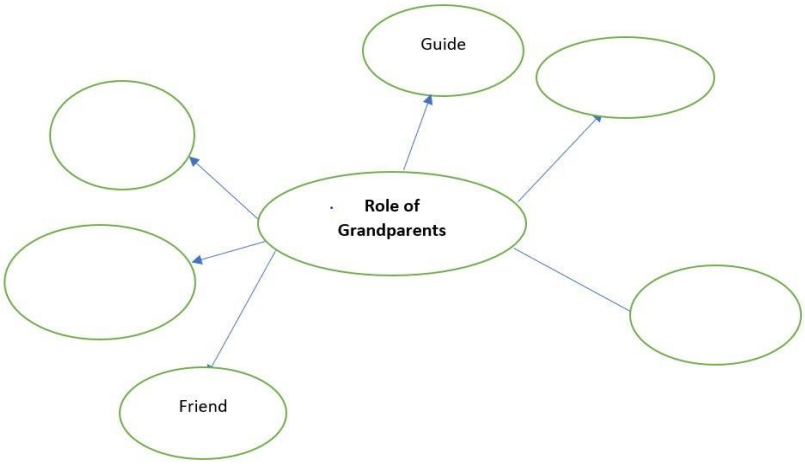
buys. Answer: Many owners said, “We regret our decision to buy the premium buys.”

B5. Personal Response:
Comment on the bad condition of the roads in your locality.

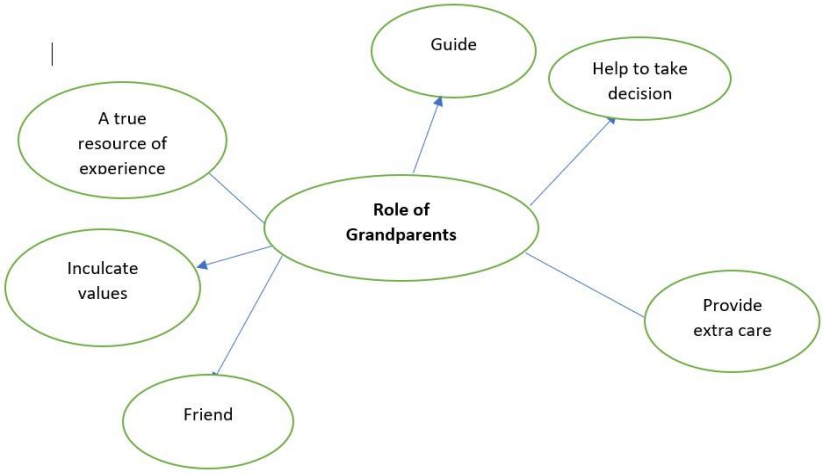
Answer: Travelling by roads is a common occurrence in India, and it provides a lot of flexibility, speed, and convenience to travellers. But, the plight of Indian roads is deplorable. The Indian roads are not wellmaintained or developed. The road is filled with potholes, which could cause damage and dents to luxury cars. The roads' sad condition also ensures that the vehicles cannot be taken out for commute towork or even a simple spin around town. Taking the cars out on the roads could also lead to accidents, severe injuries and even death.

Section-III (Poetry)

Q3. A. Read the given extract and complete the following activities: [5 Marks]A1. Complete the following web:



Answer:


Guide
Help to take decision
A true resource of experience
Role of Grandparents
Inculcate values
Provide extra care
Friend

“Oh the value of the elderly! How could anyone not know?They hold so many keys, so many things they can show. We all will read the other side this I firmly believe
And the elderly are closest oh what clues we could retrieve.For their characters are closest to how we’ll be on high.
They are the one’s most developed, you can see it if you try. They’ve let go of the frivolous and kept things that were near.As a nation we are missing our greatest true resource,
To get to know our elders and let them guide our course”.

A2. Message:
In what way, can the elders guide us?

Answer: There are many ways in which the elders can guide us. They are like the trees, under whichthe children can rest. They imbibe the spirit of values and ethics of the family. They can guide the children to make a good decision. Elder’s play a very important role in the lives of the children.

A3. Match the pair of rhyming words in the table as they appear in the poem:

“A”	**“B”**
(i) believe	**(a) try**
(ii) high	**(b) resource**
	(c) retrieve

Answer:

“A”	**“B”**
(i) believe	(c) retrieve
(ii) high	(a) try

(B) Read the given lines and complete the activities: [5 Marks]B 1. True or False:

(i) Deforestation is common in our world.

Answer: True

(ii) Environmental pollution is not the salient feature of the world today.
Answer: False

(iii) Wildlife is endangered.
Answer: True

(iv) Number of rivers are pollution-free.Answer: False

There lie abundant rivers with pollution There fly multiple clouds with contaminationAnd when good food goes to waste.
The valleys of earth bury their paste.

Our world is an institution of environmental pollution We choose not to care
For our future generations.

And I, for one, am guilty
For buying the hundreds of electronic gadgets
That attracts the industries to produce like maggots Environmental pollution is at the heart of our planet.

The forests are dying
Wildlife is crying
Millions of fish are dying
Mother earth is sighing.

B2. Message:
Glance through the extract and complete the given table:

Do's to save our Earth	**Don'ts to save our Earth**
(i)	**(i)**
(ii)	**(ii)**

Answer:

Dos to save our Earth	**Don'ts' to save our Earth**
(i). Clean the rivers	(i) More use of electronic gadgets
(ii) Plant more trees	(ii) Not to release the contaminated water in rivers

B3. Matching:
Match the lines given in Column "A" with figures of speech as given in Column "B":

"A"	"B"
(i) For buying the hundreds of electronic gadgets	(a) Repetition
(ii) The forests are dying	(b) Metaphor

	(c) Hyperbole
	(d) Personification

Answer:

“A”	**“B”**
(i) For buying the hundreds of electronic gadgets	(c) Hyperbole
(ii) The forests are dying	(d) Personification

Section-III (Rapid Reading)

Q 4. (A) Reading the following extract and complete the activities given: [5 Marks]A 1. Complete:
Choose the correct alternative and complete the following:
(i) Gerrard expects to remain in the cottage for_____
a. the rest of the evening
b. about another ten minutes
c. fifteen minutes

Answer: about another ten minutes**.**

(ii) Gerrard finds the situation very_____
(a) frightening
(b) original
(c) melodramatic

Answer: (c) melodramatic.

Gerrard: Well, tell him to phone up directly. I must know. Yes, I expect I’ll still be here, but youmustn’t count on that_____. In about ten minutes’ time. Right-ho. Goodbye.

[He puts down the phone and goes to the divan on the left, where there is a travelling bag and starts packing. Whilst he is thus engaged, another man, similar in build to Gerrard enters fromthe right silently-revolver in hand. He is flashily dressed in an overcoat and soft hat. He bumpsaccidentally against the table and at the sound Gerrard turns quickly.]

Gerrard: (pleasantly). Why, this is a surprise, Mr.-er-

Intruder: I'm glad you're pleased for long. Put those paws up! Gerrard: This is all very melodramatic; not very original, perhaps, but-Intruder: Trying to be calm and -er- Gerrard: "Nonchalant", is your word, I think.
Intruder: Thanks a lot. You'll soon stop being smart. I'll make you crawl. I want to know a fewthings, see.

Gerrard: Anything you like. I know all the answers. But before we begin I should like to changemy position: you may be comfortable, but I am not.
Intruder: Sit down, there, and no funny business. (Motions to chair and seats himself on thedivan by the bag.)
Now then, we'll have a nice little talk about yourself!

A2. Gerrard and intruder are different in nature- Elaborate.

Answer: Gerrard is shown to be realistic and nonchalant, while the intruder is portrayed as a melodramatic person. Intruder wants to know a few things and has no qualms resorting to threat to gethis way.

A 3. Write from the extract, the sentences/phrases that indicate the intruder's threateningmanner.

Answer: Intruder: I'm glad you're pleased for long. Put those paws up!
Thanks a lot. You'll soon stop being smart. I'll make you crawl. I want to know a few things, see. Sitdown, there, and no funny business. Now then, we'll have a nice little talk about yourself!

Section-IV (Writing Skill)

Q.5 (A) Do any of the following A1 or A2 activities: **[5 Marks]**

A1. Look at the news heading and write a letter to congratulate Anjana.
"Nashik's Anjana wins 800 m Asian Youth Gold."

Answer: Activity to be done by students. Giving a sample format:

Name
Place
Date

Salutation,

Start off by congratulating Anjana in the body of the letter. Can write the letter in your own words**.** End bygiving all the best for the future.

Yours
affection
ately,
Name

Or

A 2. Concession for the students:

Students commuting daily to their schools by bus (S.T or local)
may apply to,The Controller/ Stationmaster
Documents required:
(i) bona fide certificate

(ii) the latest photograph
(iii) address proof

Write an application in response to the above advertisement, addressing the Controller/ Stationmaster of your area.

Answer: Activity to be done by the students.Find the letter format:

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To,
The
Con
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MH
RT
C,
Mumbai-40010

Subject: Requesting student concession
Salutation(Respected Sir),

First introduce yourself. Go direct to the point (as to the requirement). Can give a small premise as towhy you need concession.
Then give a list of the documents attached. (can write the number of documents in the list).Say thanks.

Yours faithfully,
Name

(B) Do any one of the given activities: **[5 Marks]**

B1. Report:
Look at the following news and prepare a report about

the same:Masti ki Pathshaala on IIM- A

Footpath

Ahmedabad: Every morning some kids gather around a young man as he greets them with sweets and starts his class near the Indian Institute of Management (IIM-A) wall. This class hasno blackboard. The man hands over a chalk and charcoal and starts explaining alphabets and soon breaks into song as kids too join in. This is Masti ki Pathshala run by Ashish Vyas a 30 years old from Naranpura.

Answer: Activity to be done by the

students.Sample Format:

Title Name

Place, date: Ashish is a 30-year-old man from Naranpura, who is a favourite among some street childrennear IIM- Ahmedabad. Masti ki Pathshala, the school for underprivileged children is an initiative by him…….

Or

B2. Preparing questions:
Referring to the given news item, frame ten questions to interview Ashish Vyas.

Answer: Find here the questions to interview Ashish Vyas:

1. What was the inspiration to begin Masti ki Pathshala?
2. Who assists you during the difficult times?
3. How are the financial needs of the school managed?
4. What was the response of the Govt to your idea?
5. Name the challenges that you face while conducting the classes.
6. Where do you hope to see Masti ki Pathshala post two years?
7. What is the significance of choosing a place near the IIM?
8. How are the students enrolled in the Masti ki Pathshala?
9. What was the reaction of the community about the school?
10. Tell us about your future plans for the School.

Q6. (A) Information transfer Non-verbal/ verbal [5 Marks]
A 1. Prepare a paragraph on "Problems in Conservation of Wildlife and Solutions" using thepoints given in the following table:

Problems in Wildlife Conservation and Solutions		
Man-made Problems	**Natural Problems**	**Solutions**
• **Population explosion** • **Ever-growing need for agricultural land** • **Over-exploitation of forests, like wood etc.** • **Poaching to meet ever-increasing international demand for animal hides**	• **outbreak forest fires** • **draught** • **floods**	• **provision of strict laws and** • **proper execution of the laws** • **providing proper security to protect wildlife** • **arranging for check-posts to detect poaching etc.**

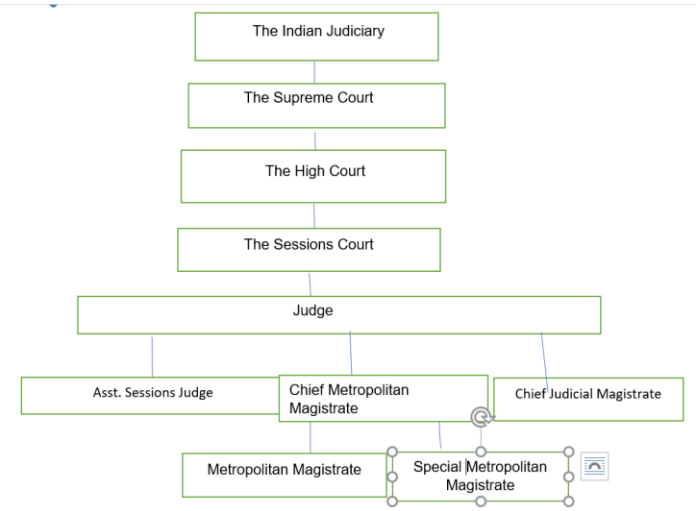
Answer: Activity to be done by the students.

A 2. Read the following passage and draw a tree diagram to cover the main points:

The Indian Judiciary is made up of courts at three levels. The Supreme Court is the apex courtof it is for the whole Union of India. There are High Courts for each state. In each state, at thedistrict level, there are Sessions Courts.

The Sessions Court judge has under his jurisdiction either the Assistant Sessions Judge, the Chief Metropolitan Magistrate or the Chief Judicial Magistrate. The Chief Metropolitan Magistratehas under his jurisdiction the Metropolitan Magistrate and the Special Metropolitan Magistrate.

Answer:



(B) Complete any one of the given B 1 or B 2 **[5 Marks]**

B 1. Write your view supporting, 'The Need for Cashless Transactions Today' using the pointsgiven in the view column:

VIEW
• convenience • curbing black money • preventing tax evasion • no risk of carrying cash • saving paper • preventing illegal transactions • add your own points

Answer: Activity to be done by the students.

Or

B 2. Speech:
Prepare a speech on the issue "Advantages of Cashless Transactions", raised in the classassembly.

Answer: Activity to be done by the students.

Q 7. Develop a paragraph of about 100 words expanding any one of the followingexpressions: **[5 marks]**

(i) Books are best friends

Answer: Activity to be done by the students.

(ii) Child labour- a curse

Answer: Activity to be done by the students.

(iii) _____ That's how we saved the animals during drought time.

Answer: Activity to be done by the students.

Maharashtra Board Class 10 Geography and Economics Question Paper 2017

Maharashtra State Board
Class 10 Social Science
Geography and Economics– Paper 2
2017

Time: 2 hours **Max marks: 40**

Note:

- **All questions are compulsory.**
- **Figures to the right indicate full marks.**
- **Solve Q. No. 3 (A) use the graph paper supplied to you and attach it to your answer-book.**
- **Use supplied outline map of India for Q. No. 3(C) and tie it to your answerbook tightly.**
- **Use of stencil is allowed for drawing map.**

1. (A) Complete the following statements by choosing the appropriate alternatives from those given in the brackets and rewrite the sentence in your answer book: [3]

(1) Area wise India is the……largest country in the world.
(fifth, sixth, seventh, fourth)
(2) The forest soils are…..in colour.
(dark yellow, dark brown, dark red, pink)
(3) ……river flows through the south-eastern part of Bagar region.
(Satluj, Ghaghra, Luni, Saraswati)

(B) Match the items in Column 'A' with those in Column 'B':

Column 'A'	Column 'B' [3]
(1) Shisham	(a) A hill station
(2) Gurushikhar	(b) A place of worship

(3) Saputara

(c) Aravalli Mountain

(d) The foothills of the Shiwaliks

2. (A) Give geographical reasons for the following statements (any two): [4]

(1) Region approach to geographic studies is very important.

(2) The soils of the Eastern Ghats are generally not very fertile.

(3) Rajasthan desert fascinates tourists

(4) Forest cover is shrinking in the Peninsular Plateau region- central highlands.

(B) Write a short note on (any two): [4]

(1) Environmental problems in the Assam Plain

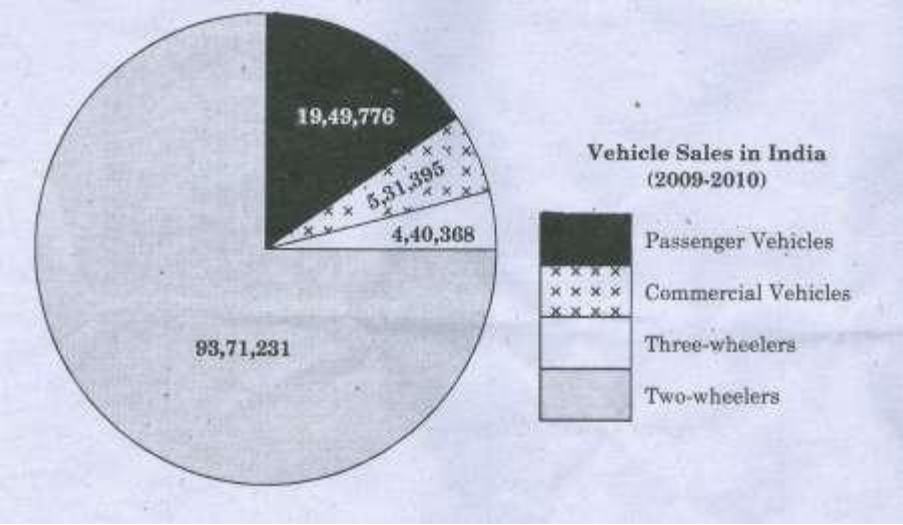
(2) Maharashtra Plateau

(3) Fisheries in the Indian Islands.

3. (A) With the help of given statistical data prepare a line graph: [2]

Year	Sugar Production (Lakh Tonnes)
2000-01	95
2001-02	130
2002-03	180
2003-04	160
2004-05	125

(B) Observe the following diagram and answer the questions given below it (any two): [2]



Questions:

(1) Name the diagram.

(2) Which type of vehicles had the maximum sale in India?

(3) Which type of vehicles had the minimum sale in India?

(4) What was the sale of Commercial Vehicles?

(C) Mark the following in the outline map of India supplied to you. Write the names. (any two):

[2]

(1) Western Plains

(2) Sikkim Himalayas

(3) Jaisalmer

(4) Godavari River

4. Answer the following questions in detail (any two): [8]

(1) Give the details about the rivers of the Himalayas.

(2) Describe about forest distribution in the Ganga Plain.

(3) What are the environmental problems of the Western Ghats and the West Coastal region?

5. Fill in the blanks by choosing the correct alternatives from those given in the brackets: [2]

(1) In a capitalist economy, means of production are owned, controlled and operated by…….. (government, society, private individuals)

(2) An economic problem mainly arises due to……of resources.

(plenty, scarcity, availability)

6. Answer the following questions in one or two sentences each (any three): [6]

(1) What is meant by political sovereignty?

(2) What is meant by Public Distribution System?

(3) What are the effects of Industrial disputes?

(4) What are the duties of a consumer?

(5) Explain the meaning of ‘bank rate’?

7. Answer any one of the following questions in five or six sentences: [4]

(1) Write the factors responsible for increase in demand for goods and services.

(2) What are the measures suggested to remove the defects of Public Distribution System?

Maharashtra Board Class 10 History and Political Science

Question Paper 2017

Maharashtra State Board
Class 10 Social Science
History and Political Science– Paper 1
2017

Time: 2 hours **Max marks: 40**

Note:

- **All questions are compulsory.**
- **Figures to the right indicate full marks.**
- **Question Nos. 1 to 5 belong to History and Question Nos.6 to 9 belong to Political science.**

1. (A) Complete the following statements by choosing the appropriate alternatives from those given in the brackets and rewrite the sentence in the brackets: [3]

(1) Portuguese King……motivated the navigation.
(William, Henry, Nicholas)

(2) Triple Alliance Agreement was signed between Germany, Austria and……. (France, Japan, Italy)

(3) Upto 18th century…….was regarded as a dark continent. (Asia, Africa, America)

(B) Match the correct pairs of Column 'A' and 'B':

Column 'A'	Column 'B'
(1) Scientist Godard	(a) Fascist Party
2) Adolf Hitler	(b) March to the Royal palace in St. Petersburg

[3]

(3) Father Gapon (c) Nazi Party

(d) Father of Missiles Science

2. Answer the following questions in 25 to 30 words each (any two): [4]

(1) The discovery of interior part of Africa did not take place, why?

(2) Why did the European countries increase weapons and ammunition?

(3) What were the objectives of the League of Nations?

3. Give reasons for the following statements in 25 to 30 words each (any two): [4]

(1) The Portuguese couldn't set up their empire in India.

(2) The condition of common people and workers in Russia was a miserable one.

(3) The democratic governments in Europe started to collapse after the First World War.

4. Answer the following questions in 30 to 40 words each (any two): [6]

(i) Give the detailed information about the UNO before its foundation.

(ii) How did Hitler acquire power in Germany? (iii) What are disadvantages of globalization?

5. Answer the following questions in 60 to 80 words each (any two): [8]

(i) Write about the constructive effects of Imperialism.

(ii) What were the contribution of extremists and moderates in India's freedom movement? (iii) Explain the causes of Cold War.

6. Fill in the blanks with a suitable word from those given in the bracket: [3]

(i) India has……..form of Democracy.

(direct, indirect, presidential, mixed)

(ii) ……..is a country homogeneous in the case of language.

(India, Switzerland, China, Sri Lanka)

(iii) Extreme……..endangers democracy.

(inequality, vigilance, unity, tolerance)

7. Answer the following questions in one sentence each (any three) [3]

(i) When is referendum adopted?

(ii) What is regional inequality?

(iii) What is the main aim of the Political Party?

(iv) Name any two religions existing in India.

(v) State any one difference between ruling party and the opposition party.

8. State whether the following statements are True or False with reasons (any two):

(i) Nationalist Congress Party is a regional party.

(ii) Caste system is like a hierarchy.

(iii) There are no restrictions on citizens holding arms in US.

9. Answer any one of the following questions in 25 to 30 words: [2]

(i) What are different ways of having people's participation in Democracy?

(ii) Explain the dual nature of the questions before democracy.

Maharashtra Board Class 10 Science and Technology Part I

Solved Previous Year Question Paper -2017

SECTION A

Q.1. (A) (a) Find the odd man out: **[2]**

i. Camphor, Ammonium Chloride, Naphthalene balls, Sugar ii. Turmeric, Methyl Orange, Rose petals, Beetroot.

Answer: i. Sugar

Sugar is the odd one out in this, as all other products are sublimatory substances that convert directly to gaseous form from its solid state, without passing through any liquid stage. Also, camphor, Ammonium chloride and naphthalene balls are volatile substances, while sugar is non-volatile.

ii. Methyl orange

Turmeric, Rose petals and Beetroot are all-natural indicators, while Methyl orange is a synthetic indicator.

(b) Match the following: **[2]**

Column I	**Column II**
i. Myopia	(A) Converging power of eye lens becomes low
ii. Hypermetropia	(B) Converging power of eye lens remains the same
	(C) Converging power of eye lens becomes high

Answer:

Column I	**Column II**
i. Myopia	(A) Converging power of eye lens becomes high
ii. Hypermetropia	(B) Converging power of eye lens becomes low

(c) Fill in the blank: **[1]**

To increase the effective resistance in a circuit the resistors are connected in _____.

Answer: Series

(**B) Rewrite the following statements by selecting the correct options:** **[5]**

i. $CaCO_3 \xrightarrow{\Delta} CaO + CO_2$ is a _____ reaction.

(A) combination
(B) displacement
(C) double displacement
(D) decomposition

Answer: (D) decomposition reaction

In this reaction, one compound breaks down or decomposes to form two or more products. Heat calcium carbonate ($CaCO_3$) and it releases calcium oxide and carbon dioxide.

ii. The colour of the universal indicator solution is _____.
(A) red
(B) blue
(C) green
(D) greenish yellow

Answer: The colour of the universal indicator solution is greenish yellow.

iii. The height of the image formed by an object of height 10 cm placed in front of a plane mirror is _____.

(A) 5 cm
(B) 10 cm
(C) 15 cm
(D) 20 cm

Answer: (B) 10cm

The height of the image formed is always equal to the object placed before it.

iv. When the resistance of a conductor increases, the current will _____

(A) increase
(B) decrease
(C) remain the same
(D) become double

Answer: (B) decrease

As per the Ohm's law, resistance of a conductor is inversely proportional to the current flowing through it.
v. Lime water turns milky when _____ gas is passed through it.

(A) H2
(B) CO
(C) CO2
(D) SO2

Answer: (C) CO_2

A Gas that reacts with the lime solution to turn the lime water milky is carbon dioxide (CO_2). The lime solution turns milky because of the formation of calcium carbonate.

2. Answer any five of the following: **[10]**

i. State any two applications of baking soda.

Answer: Given here are some uses or applications of baking soda:
(1) Used to prepare spongy cakes, breads and dhoklas
(2) As it is alkaline, it helps to regulate the acidity in the stomach
(3) Very useful in preparing CO2 gas and is a major ingredient in fire extinguishers

ii. Define magnetic lines of force and state its two properties.

Answer: Magnetic lines of force is the path along which a unit, the North pole moves in a magnetic field. This begins at the north pole and ends at the south pole. Meanwhile, the properties of the magnetic lines of force are listed below:

- Magnetic lines of force is also known as the magnetic fields of life and end at south pole, while it starts at the north pole
- It is not possible for two magnetic lines of force to intersect each other
- Magnetic lines of force are crowded where the magnetic field is strong, while they are far from each other where the field is weak

iii. Differentiate between Normal elements and Transition elements.

Answer: Transition elements (also known as transition metals) are elements that have partially filled d orbitals. According to IUPAC, transition elements have a d subshell that is partially filled with electrons, or they are elements that have the ability to form stable cations with an incompletely filled d orbital. Normal elements, in the meantime are s and p block elements also called main group elements placed on the side of the periodic table, whereas transition elements are at the middle of the periodic table. Normal elements belong to groups 1, 2, 13 and 17. In these elements, the inner shells are all completely filled except for the outermost shells. Meanwhile, transition elements belong to groups 3 and 12. In these elements, the outermost shell as well as the shell next to it (the penultimate shell) are incomplete.

iv. Classify the given sources of water pollution as natural and man made:

a. domestic waste
b. dead animals
c. oil spills
d. ashes released due to forest fires

Answer: Dead animals or Ashes released due to forest fires are natural sources of water pollution. Meanwhile, man made sources for water pollution includes domestic waste and oil spills.

v. An object is held 20 cm away from a converging lens of focal length 10 cm. Find the position of the image formed.

Answer: For a converging lens if f= 10cm and u=-20cm, then apply the given equation
1/f= 1/ v - i/u
Hence, 1/v = 1/f + 1/u = 1/10 + 1/-20 =
1/10- 1/20 Therefore, 1/ v= 1/20cm So,
v =20cm.

vi. Define scattering of light

Answer: The process of absorption and re-emission of light energy, that is when a ray of light is incident on extremely small particles, these particles deflect light in different directions. This process is known as scattering of light.

3. Solve any five of the following questions: [15]

i. Define corrosion. What is meant by rust? Write the chemical formula of rust.

Answer: When the surface of a metal is attacked by air, moisture or any other substance, then the metal may corrode and this phenomenon is called corrosion. Iron reacts with the moist air to gain a brown flaky coating known as rust. Meanwhile, the chemical formula for rust or hydrated iron(III) oxide is
($Fe_2O_3.XH_2O$).

ii. Complete the following table:

Instruments	**Number of Convex Lenses**	**Uses**
Simple Microscope	1	Used by watch repairers to see tiny watch parts
Compound Microscope	2	Used by watch repairers to see tiny watch parts
Telescope	2	Used to view faraway objects in outer space

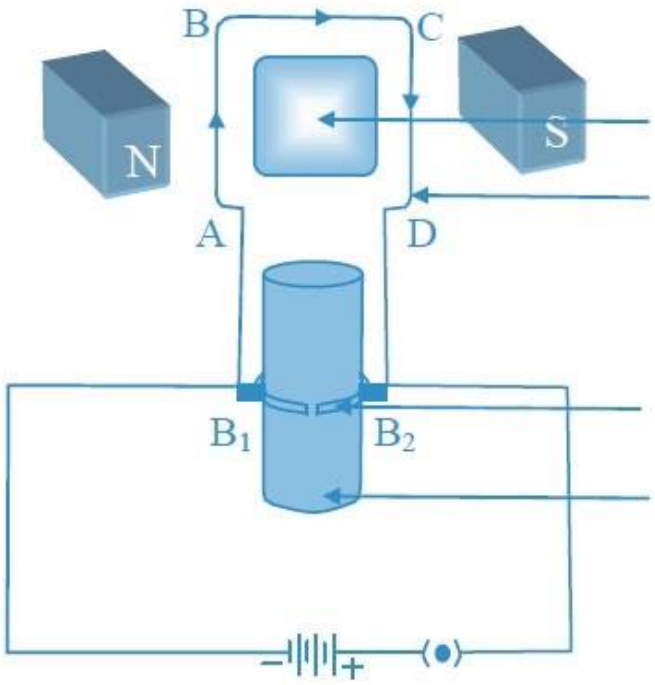
iii. What do you do in the following situations?

a. Exposed to exhaust fumes in traffic

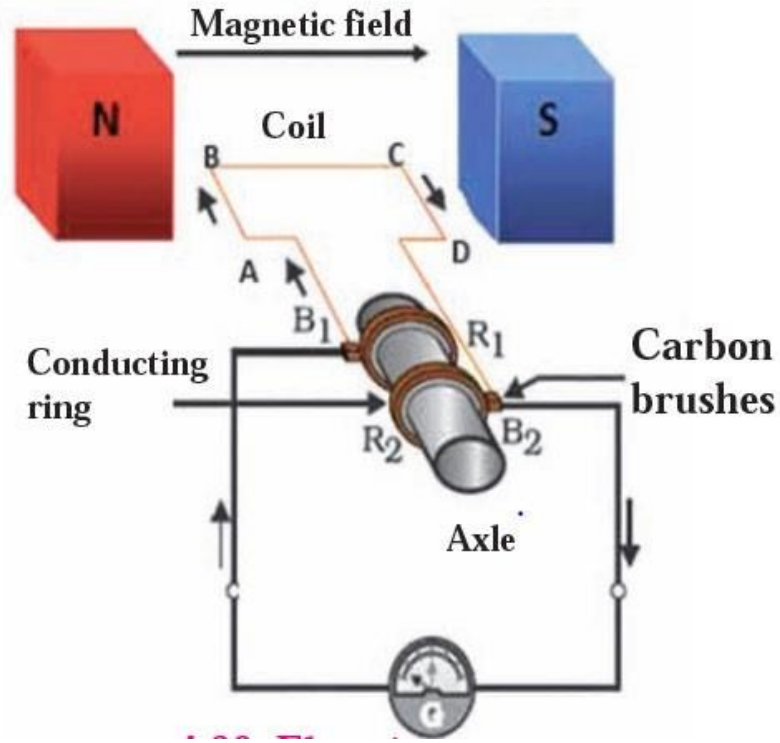
b. Exposed to a series of firecrackers with high sound level
c. Get turbid drinking water during monsoon

Answer: a**.** The first thing to do when you get exposed to exhaust fumes in traffic is to cover your nose with a handkerchief and immediately move away from the polluted area. You could also suggest to the vehicle owners to undergo the pollution under control (PUC) test for their vehicles so that they can avoid air pollution resulting from exhaust fumes.
b. When exposed to a series of bursting crackers with high decibel levels, then you should cover your ears immediately, so that you are protected from any internal damage caused by such intense sound. Or if the crackers are burst in the silent zone, then you are required to immediately report the issue to the police station so that strict action can be taken. Lighting crackers could cause air and noise pollution. c. If you get turbid drinking water during the monsoon season, make the water potable by stirring with alum. Alum allows all the impurities in the water to settle, thus leaving pure water on the top. Alternatively, it is also possible to make the water potable by passing the water through candle or electric filters. Doing so will not only make the water potable but will also remove water-borne pathogens, thus preventing diseases that are water-borne.

iv. Label the four parts of the electric motor and write two uses of DC motor.



Answer:



DC motors are required where there is a need for variable speed and high torque. They are mainly used in small domestic appliances. Learn more about electric motors and types of DC motors from here.

v. State any three demerits of Mendeleev's periodic table.

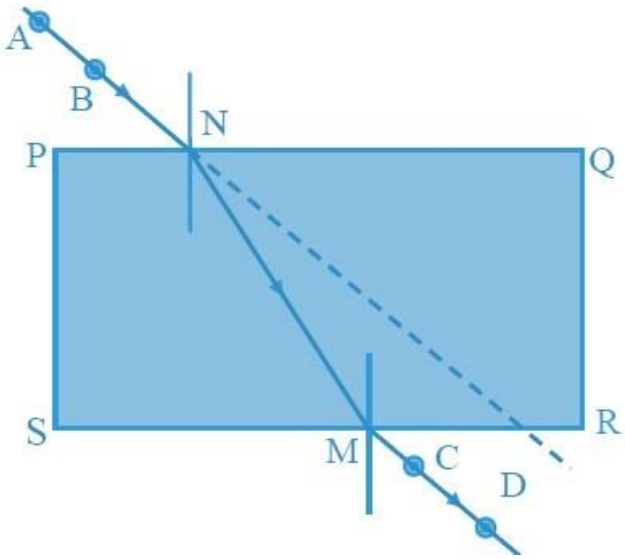
Answer: There is ambiguity in Mendeleev's table regarding the sequence of the whole number atomic mass of the elements cobalt (Co) and nickel (Ni), which is the same. Isotopes were discovered long after Mendeleev put forth the 4th periodic table. Since isotopes have the same chemical properties but different atomic masses, a challenge was posed in placing them in Mendeleev's periodic table and so on. Know more about the demerits of Mendeleev's periodic table, by clicking on the given link.

vi. Draw the electrical symbols of the following components and state its use: a. Wire crossing
b. Rheostat (variable resistance)
c. Ammeter.

Answer: To know in-depth about the electrical circuit, its components and uses, check out the circuit diagram with its components.

4. Answer any one of the following questions: [5]

i. Observe the following figure and answer the questions given under it:



a. How many times does refraction take place in the above figure?
b. What happens to the ray of light when it passes from air to glass?
c. What happens to the ray of light when it passes from glass to air?
d. What are the rays AB and CD in the figure called?
e. Define refraction

Answer: a. Refraction takes place twice in the above figure, once at point N and second at point M
b. Since air is rarer than glass, since the ray of light passes from the rare medium to the denser medium, it tends to bend towards the normal
c. Alternatively, when the ray of light passes from the denser medium to the rarer medium then the ray of light bends away from the normal
D. Ray AB is known as the incident ray, while ray CD is called the emergent ray
e. The phenomenon of change in the direction of propagation of light as it passes obliquely from one transparent medium to the other is known as refraction.

ii. a. Find the expression for resistivity of a material and state the SI unit of resistivity. (3)
b. Observe the following figure:

If the current in the coil A is changed, will some current be induced in the coil B? Explain. **(2)**

Answer: a**.** Given that resistance of a conductor is directly proportional to l, its length and inversely proportional to its area of cross section A.

That is, R ∝ l and R ∝ 1/A
Hence, R ∝ l /A
And R ∝ ρ 1/A, where ρ is the proportionality constant, also denoting the resistivity of the material of the conductor.
Finally, post rearrangement of the following equation, what you get is ρ=RA/ l
This is the expression for resistivity and the SI unit of resistivity is ohm-meter.

b. A current is induced in Coil B. Along with the change in current in Coil A, a magnetic field is associated with it, inducing a potential difference between the two coils. Meanwhile, there is deflection in the galvanometer to denote the potential difference of the two coils that give rise to a current in Coil B.

Maharashtra Board Class 10 Science and Technology Part II

Solved Previous Year Question Paper -2017

SECTION B

1. (A) Answer the following sub–questions:

(a) Fill in the blanks and rewrite the completed statements:
[2] i. Nervous system is absent in _____ ii. Both the parents contribute equal amounts of _____ material to the offspring.

Answer: i. plants
ii. genetic material

(b) State whether the following statements are true or false:
[2] i. The general formula of alkanes is C_nH_{2n+2} ii. Carbohydrates are body building nutrients.

Answer: i. True
ii. False
Proteins are the body building nutrients, while carbohydrates are the energy giving nutrients

(c) Considering the relationship in the first pair, complete the second pair: **[1]**
Root: Vegetative propagation:: Flower : _____

Answer: c. Sexual reproduction
Root: Vegetative propagation:: Flower : _____

(B) Rewrite the following statements by selecting the proper options:
[5] i. The exchange of respiratory gases in the cells of plants occurs by the process of _____ (A) osmosis
(B) diffusion
(C) glycolysis
(D) exhalation

Answer: (B) diffusion

Air enters the stomatal opening in the plant cells, following which the exchange of respiratory gases is carried out via diffusion.

ii. A solution of _____ in water is green in colour.
(A) $CuSO_4$
(B) $FeSO_4$
(C) $ZnSO_4$ (D) $Al_2(SO_4)_3$

Answer: (B) $FeSO_4$
The aqueous solution of $FeSO_4$ is in green colour.

iii. _____ type of reproduction takes place in Hydra.
(A) Budding
(B) Binary fission
(C) Multiple fission
(D) None of the above

Answer: (A) Budding

iv. The process of absorption of water into raisins occurs through its membranes. This process is known as _____
(A) Absorption
(B) Osmosis
(C) Adsorption
(D) Diffusion

Answer: (B) Osmosis

Osmosis is the process of absorption of water into raisins via its membranes.

v. When zinc powder is added to acetic acid _____
(A) the mixture becomes warm
(B) a gas is evolved
(C) the colour of the mixture becomes yellow
(D) a solid settles at the bottom

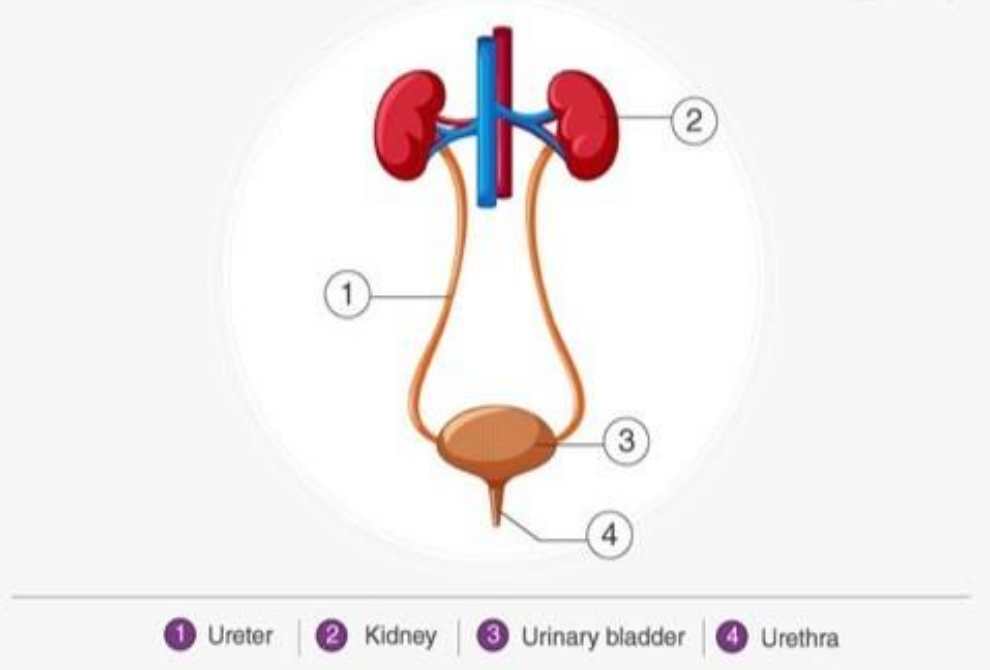
Answer: (B) a gas is evolved

$Zn + 2CH_3COOH \rightarrow Zn(CH3COO)_2 + H_2$

2. Attempt any five of the following: **[10]**

i. Draw a neat labelled diagram of the human excretory system.

Answer:



ii. Differentiate between Mendel's monohybrid cross and dihybrid cross

Answer: ii. There are two types of breeding methods monohybrid and dihybrid used to know the working of genes and to analyze how certain traits are inherited from grandparents and parents. Know more about the difference between monohybrid and dihybrid from the link.

iii. Explain the following reaction with the help of a balanced chemical equation: Magnesium reacts with hot water.

Answer: iii. Magnesium does not react with cold water but it goes on to react with hot water, thus creating magnesium hydroxide and evolving hydrogen gas.

$Mg + 2H_20 \rightarrow Mg(OH)_2 + H_2$

iv. What is recycling? Give one example.

Answer: iv. The green technology of utilising old materials to make new products is known as recycling. Example: used papers and recycled to manufacture cardboards.

v. What are vestigial organs? Give one example.

Answer: Vestigial organs are those organs that are non-functional in some organisms, but may be essential functions for other organisms. Some examples of vestigial organs are the wisdom tooth or tailbone.

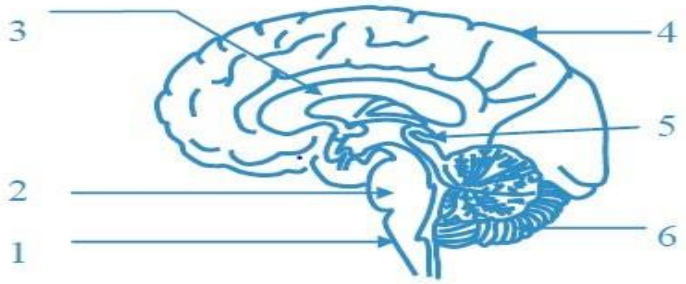
vi. Write a short note on Catenation.

Answer: Catenation is the property of the carbon element by which its atoms join one another to form long carbon chains. Know more about catenation.

3. Attempt any five of the following questions:

[15]

i. Write the names of the indicated parts 1 to 6 in the following diagram:



Human Brain

Answer: Given below are the names as indicated by the labels as in the diagram above:
1.Medulla oblongata
2. Pons varolii
3. Corpus callosum
4.Cerebrum
5. Pineal body
6. Cerebellum

ii. What is the need to use eco–friendly technology?

Answer: Eco-friendly technology helps in keeping the environment cleaner. It also helps to curb quick depletion of resources.

iii. State the IUPAC names of the following compounds: a. $CH_3–CH_2–CH_2–OH$
b. HCOOH
c. $CH_3–CH_2–CH=CH_2$.

Answer: a. 1- Propanol b. Methanoic acid
c. 1-Butene

iv. What is embryology? How does its study lead us to understand evolution?

Answer: The study of development of an organism from an embryo is known as embryology. On studying the embryology of several vertebrates, you will get strong evidence of different vertebrates showing striking similarities. There are obvious similarities between embryos of fish, amphibians, birds, mammals and reptiles. If you compare the embryos of vertebrates you will see that all these organisms have gil sets even if they do not remain later on in life. Only for the fish, the gils remain. This further substantiates the idea of a common ancestor for these organisms. Other common features in the embryos but not in the adult form of these organisms are the limb buds of dolphins and the human tail buds. This adds to the belief that these organisms share an ancestor. For this reason, the developmental process remains the same for all these organisms even in spite of the modifications following their divergence.

v. What are the two types of nerves? Write their functions.

Answer: There are two different types of nerves. One helps to carry the impulses from the brain to the sensory organs and are known as efferent nerves. Meanwhile, the other kind, afferent nerves carry the impulses from the sensory organs back to the brain.

vi. What would be the consequences of the deficiency of haemoglobin in the human body?

Answer: Haemoglobin is the respiratory pigment responsible for transporting the oxygen to the body cells for cellular respiration. For this reason, the deficiency of haemoglobin in blood can affect the oxygen supplying capacity of the blood. This could cause deficiency of oxygen in the blood cells, thus resulting in a disease known as anaemia.

4. Attempt any one of the following: **[5]**

i. Answer the following questions with respect to the sexual reproduction in plants:
a. State the name of the functional unit concerned with sexual reproduction.
b. Name the part made up of the stigma, style and ovary.
c. Name the swollen lower part of the carpel.
d. Name the male part of the flower.
e. Where are the pollen grains produced?

Answer: i.a. Flower is a functional unit concerned with sexual reproduction, in plants i.b. Pistil is the part that consists of stigma, ovary and style
i. c.Ovary is the swollen part of the carpel
i.d. Stamen is the male organ of the flower
i.e. Anther produces the pollen grains

ii. **In the extraction of aluminium:**
a. Name the process of concentration of bauxite.
b. Write the cathode reaction in electrolytic reduction of alumina.
c. Write the function and chemical formula of cryolite.
d. Write a chemical equation for the action of heat on aluminium hydroxide.
e. Why is it necessary to replace anodes from time to time?

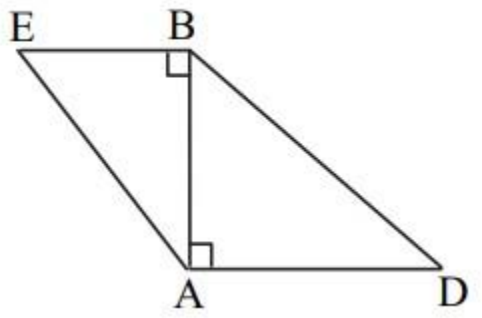
Answer: ii. a. Bayer's process is known as the process of concentration of bauxite ii.b. The cathode reaction in the electrolytic reduction of ammonia is given below: $Al^{3+} + 3e^- \rightarrow Al$ ii.c. Cryolite is combined with the molten mixture of ammonia, thus reducing the melting point.
Chemical formula of cryolite is Na_3AlF_6.
Ii.d. It is necessary to replace anodes from time to time as it gets easily oxidised as a result of the oxygen that evolves at it.

MSBSHSE Class 10 Mathematics Question Paper 2017 Geometry Paper with Solutions

PART - A

1. Solve any five sub-questions: **[5]**

(i) In the following figure, seg BE ⊥ seg AB and seg BA ⊥ seg AD. If BE = 6 and AD = 9, find A(Δ ABE)/ A(Δ BAD).



Solution:
Given,
BE = 6 and AD = 9
A(Δ ABE)/ A(Δ BAD) = [(1/2) × BE × AB]/ [(1/2) × AB × AD]
= BE/AD
= 6/9
= 2/3

(ii) If two circles with radii 8 cm and 3 cm respectively touch internally, then find the distance between their centres.

Solution:
Given,
Two circles with radii 8 cm and 3 cm respectively touch internally.
Distance between their centres = Difference of the radii
= 8 - 3
= 5 cm

(iii) Find the height of an equilateral triangle whose side is 6 units.

Solution:
Given,
Side of an equilateral triangle = 6 units
Height (Altitude) of an equilateral triangle = (√3/2) × side
= (√3/2) × 6

= 3√3 units

(iv) If the angle θ = -45°, find the value of tan θ.

Soluti
on:
Given
, θ = -
45°
We
know
that,
tan (-θ) = -tan θ
Now,
tan θ = tan (-45°)
= -tan 45°
= -1

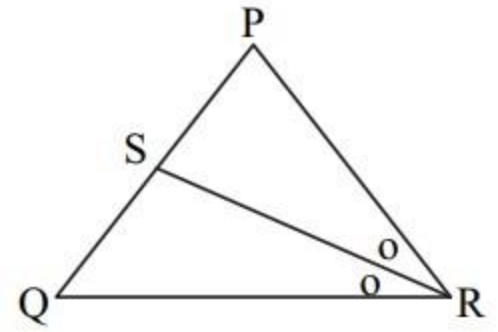
(v) Find the slope and y-intercept of the line y = 3x - 5.

S
ol
ut
io
n:
G
iv
e
n,
y
=
3
x
-
5
Comparing with the equation of line having slope m and y-intercept c:
y = mx + c m = 3, c = -5
Therefore, slope = 3 and y-intercept = -5

(vi) Find the circumference of a circle whose radius is 7 cm.

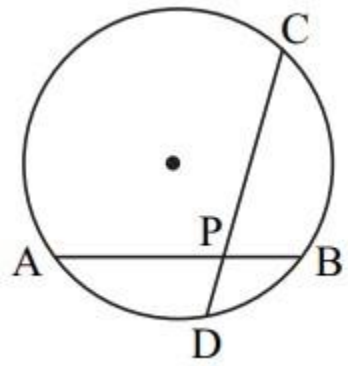
Solution:
Given,
Radius of the circle = r = 7 cm
Circumference of the circle = 2πr
= 2 × (22/7) × 7
= 44 cm

2. Solve any four sub-questions: **[8]**
(i) In ΔPQR, seg RS is the bisector of ∠PRQ, PS = 6, SQ = 8, PR = 15. Find QR.



Solution:
Given,
PS = 6, SQ = 8, PR = 15
seg RS is the bisector of
∠PRQ.
By the angle bisector property,
PR/QR = PS/SQ
15/QR = 6/8
⇒ QR = (15 × 8)/6
⇒ QR = 20

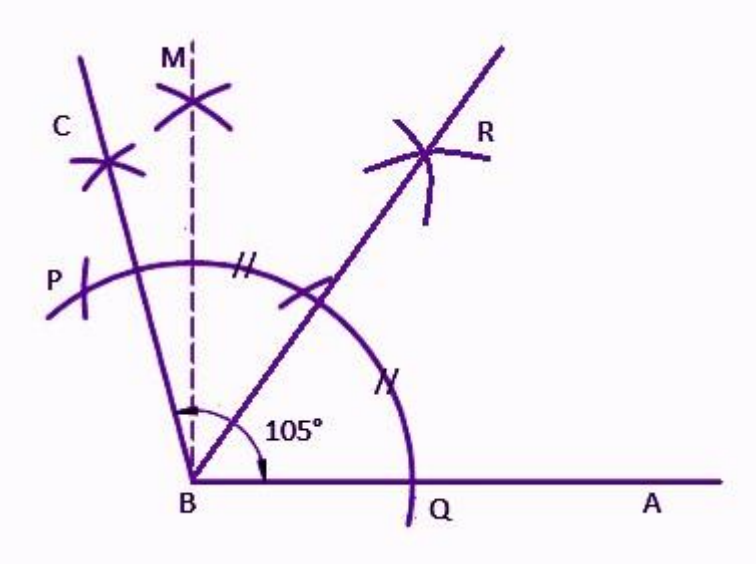
(ii) In the given figure PA = 6, PB = 4 and PC = 8. Find PD.



Solution:
We know that when the two chords of a circle intersect each other inside it then the product of their segments is equal. Given,
PA = 6, PB = 4 and PC = 8
AB and CD intersect each other at P.
PA × PB = PC × PD
6 × 4 = 8 × PD
PD = (6 × 4)/8
PD = 3

(iii) Draw ∠ABC of measure 105° and bisect it.

Solution:



Therefore, ∠ABC = 105° and BR is its bisector.

(iv) Find the sine ratio of θ in a standard position whose terminal arm passes through (4, 3).

Solution:
Given,
Terminal arm passes through the point (3, 4) i.e. (3, 4) = (x, y) r = $\sqrt{(x^2 + y^2)} = \sqrt{(3^2 + 4^2)}$
$= \sqrt{(9 + 16)}$
$= \sqrt{25}$
= 5
We know that, y = r sin θ
sin θ = y/r = 4/5

(v) Find the slope of the line passing through the points A(6, -2) and B(-3, 4).

Solution:
Let the given points be:
A(6, -2) = (x_1, y_1)
B(-3, 4) = (x_2, y_2)
Slope of the line passing through the points (x_1, y_1) and (x_2, y_2) is
$(y_2 - y_1)/ (x_2 - x_1)$
= (4 + 2)/ (-3 - 6)
= 6/-9
= -2/3
Therefore, slope is -⅔.

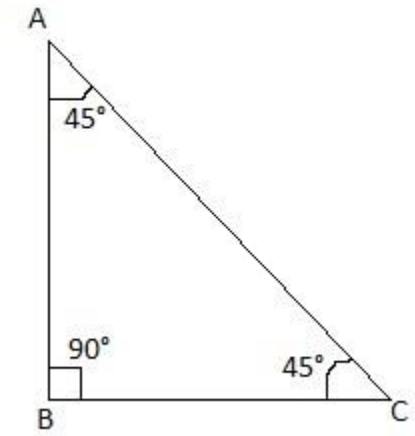
(vi) The dimensions of a cuboid in cm are 30 × 18 × 10. Find its volume.

Solution:
Given,
Dimensions of the cuboid = 30 cm × 18
cm × 10 cm i.e. Length = 30 cm Breadth
= 18 cm
Height = 10 cm
Volume of the cuboid = Length × Breadth × Height
= 30 × 18 × 10
= 5400 cm^3

3. Solve any three sub-questions: **[9]**

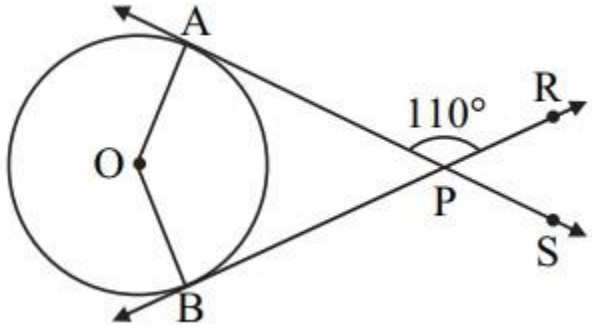
(i) Prove that, "If the angles of a triangle are 45°- 45°- 90°, then each of the perpendicular sides is 1/√2 times the hypotenuse."

Solution:
Given,
ABC is a right triangle in which ∠B = 90° and ∠A = ∠C = 45°.



To prove: AB = BC = (1/√2)
AC Proof:
∠A = ∠C = 45°
AB = BC (sides opposite to equal angles are equal)
In right triangle ABC,
By Pythagoras theorem,
$AB^2 + BC^2 = AC^2$
$AB^2 + AB^2 = AC^2$
$2AB^2 = AC^2$
$AB^2 = (1/2)\ AC^2$
AB = (1/√2) AC
And AB = BC = (1/√2)
AC Hence proved.

(ii) Find the angle between two radii at the centre of the circle as shown in the figure. Lines PA and PB are tangents to the circle at other ends of the radii and ∠APR = 110°.



Solution:

From the given,

∠APR + ∠APB = 180° (linear pair: BPR is a straight line)

110° + ∠APB =

180° ∠APB = 180°

- 110°

∠APB = 70°

We know that the radius is perpendicular to the tangent through the point of contact.

∠OAP = ∠OBP = 90°

In quadrilateral OAPB,

∠APB + ∠OBP + ∠BOA + ∠OAP = 360°

70° + 90° + ∠BOA + 90° = 360°

∠BOA + 250° = 360°

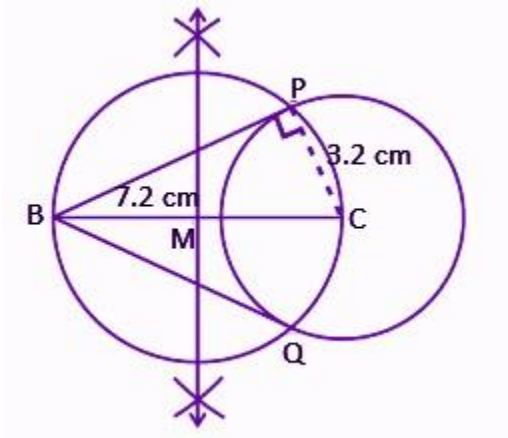
∠BOA = 360° - 250°

∠BOA = 110°

Therefore, the angle between the two radii is 110°.

(iii) Construct tangents to the circle from point B, having radius 3.2 cm and centre 'C'. Point B is at a distance of 7.2 cm from the centre.

Solution:

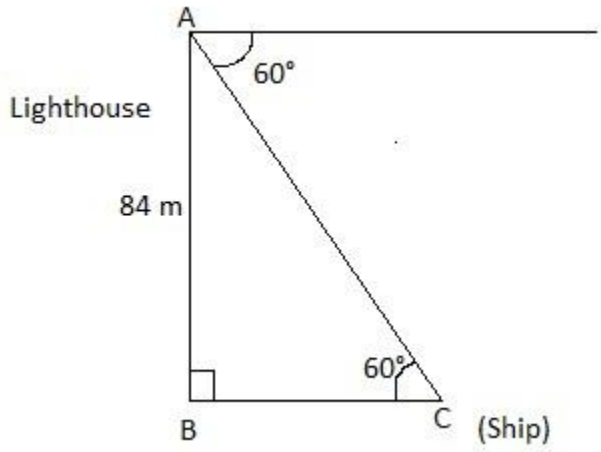


Therefore, BP and BQ are the required tangents to the circle with centre C.

(iv) From the top of a lighthouse, an observer looks at a ship and finds the angle of depression to be 60°. If the height of the lighthouse is 84 metres, then find how far is that ship from the lighthouse? (√3 =

1.73)

Solution:
Let AB be the lighthouse and C be the position of the ship.



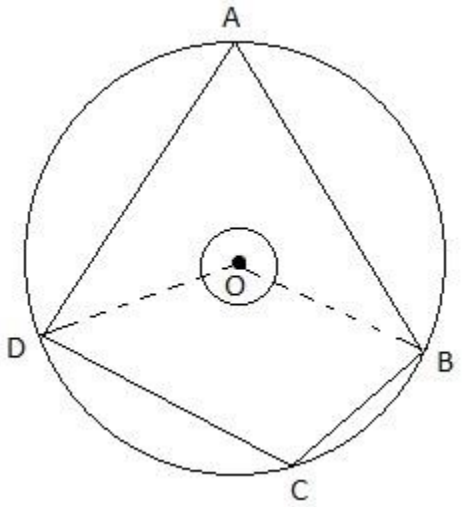
AB = 84 m
In right triangle ABC,
tan 60° = AB/BC
√3 = 84/BC
BC = 84/√3
= (84/√3) (√3/√3)
=
(84√
3)/3
=
28√3
= 28 × 1.73
= 48.44
Hence, the distance between the ship and the lighthouse is 48.44 m.

(v) The volume of a cube is 1000 cm^3. Find its total surface area.

Solution:
Given,
Volume of cube = 1000 cm^3
⇒ $(side)^3$ =
$(10)^3$ ⇒
Side = 10
cm
Total surface area of cube = 6 × $(side)^2$
= 6 × $(10)^2$
= 6 × 100
= 600 cm^2

4. Solve any two sub-questions: **[8]**
(i) Prove that, “The opposite angles of a cyclic quadrilateral are supplementary”.

Solution:
Given,
ABCD is a cyclic quadrilateral of a circle with centre O.
Construction: Join OB and OD.
To prove: ∠BAD + ∠BCD = 180°



Proof:
We know that the angle subtended by the arc at the centre is twice the angle subtended by it at the remaining part of the circle.
∠BOD = 2∠BAD....(i)
Also, reflex∠BOD =
2∠BCD....(ii)
Adding (i) and (ii),
2∠BAD + 2∠BCD = ∠BOD + reflex ∠BOD
2(∠BAD + ∠BCD) =
360° ∠BAD + ∠BCD =
360°/2
∠BAD + ∠BCD = 180°
Hence proved.

(ii) Eliminate
θ, if x = 3
cosec θ + 4
cot θ
y = 4 cosec θ - 3 cot θ

Solution
: Given,
x = 3 cosec θ + 4
cot θ….(i) y = 4
cosec θ - 3 cot
θ….(ii) (i) × 4 - (ii) ×
3,
4x - 3y = 12 cosec θ + 16 cot θ - (12 cosec θ - 9 cot θ)

4x - 3y = 25
cot θ cot θ =
(4x - 3y)/25
Squaring on
both sides,
$\cot^2\theta = [(4x - 3y)/25]^2$....(iii)
Now,
(i) × 3 + (ii) × 4,
3x + 4y = 9 cosec θ + 12 cot θ + 16 cosec θ - 12 cot θ
3x + 4y = 25 cosec θ
cosec θ = (3x +
4y)/25 Squaring on
both sides, $\text{cosec}^2\theta =$
$[(3x + 4y)/25]^2$....(iv)
We know that,
$\text{cosec}^2\theta - \cot^2\theta = 1$
$[(3x + 4y)/25]^2 - [(4x - 3y)/25]^2 = 1$
$(1/625) [(3x + 4y)^2 - (4x - 3y)^2] = 1$
$(3x + 4y)^2 - (4x - 3y)^2 = 625$

(iii) A toy is a combination of a cylinder, hemisphere and a cone, each with radius 10 cm as shown in the figure. Height of the conical part is 10 cm and the total height is 60 cm. Find the total surface area of the toy. (π = 3.14, √2 = 1.41)

Solution:
Given,
Radius of cylinder = Radius of hemisphere = Radius of cone = r = 10 cm
Height of the conical part = h = 10 cm
Total height of the toy = 60 cm
Height of the cylinder = H = 60 - 10 - 10 = 40 cm
Slant height of cone = $l = \sqrt{(r^2 + h^2)}$
$= \sqrt{(10^2 + 10^2)}$
$= \sqrt{(100 + 100)}$
=
√20
0 =

$10\sqrt{2}$ cm

Total surface area of the toy = CSA of cone + CSA of cylinder + CSA of hemisphere

$= \pi rl + 2\pi rh + 2\pi r^2$

$= \pi[10 \times 10\sqrt{2} + 2 \times 10 \times 40 + 2 \times 10 \times 10]$

$= 3.14\ [100\sqrt{2} + 800 + 200]$

$= 3.14\ [100 \times (1.41) + 1000]$

$= 3.14\ [141 + 1000]$

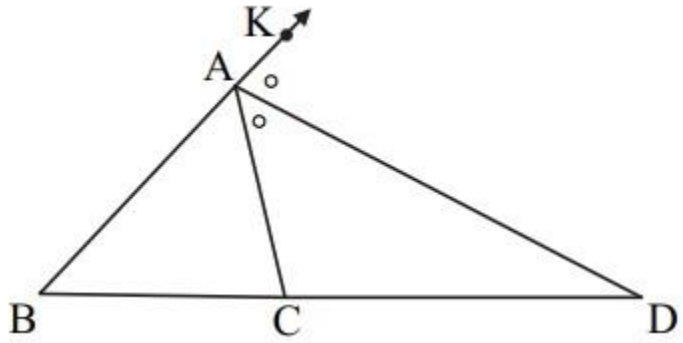
$= 3.14 \times 1141$

$= 3582.74\ cm^2$

Hence, the total surface area of the toy is 3582. 74 cm^2.

5. Solve any two sub-questions: **[10]**

(i) In the given figure, AD is the bisector of the exterior ∠A of ΔABC. Seg AD intersects the side BC produced in D. Prove that: BD/CD = AB/AC



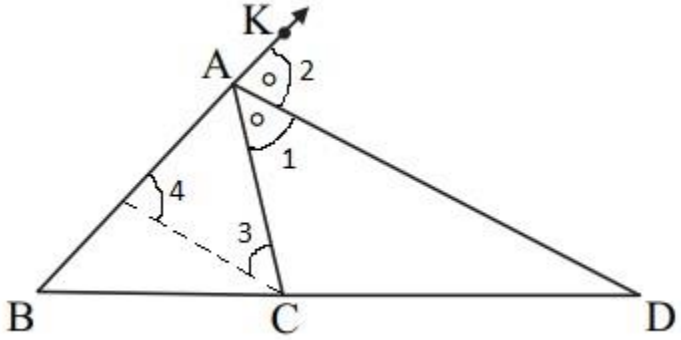
Solution:

Given,

AD is the bisector of the exterior ∠A of ΔABC.

Also, Seg AD intersects the side BC

produced in D. Draw EC || AD.



EC || AD

Thus, AC is the transversal.

∠1 = ∠3 (alternate interior angles)

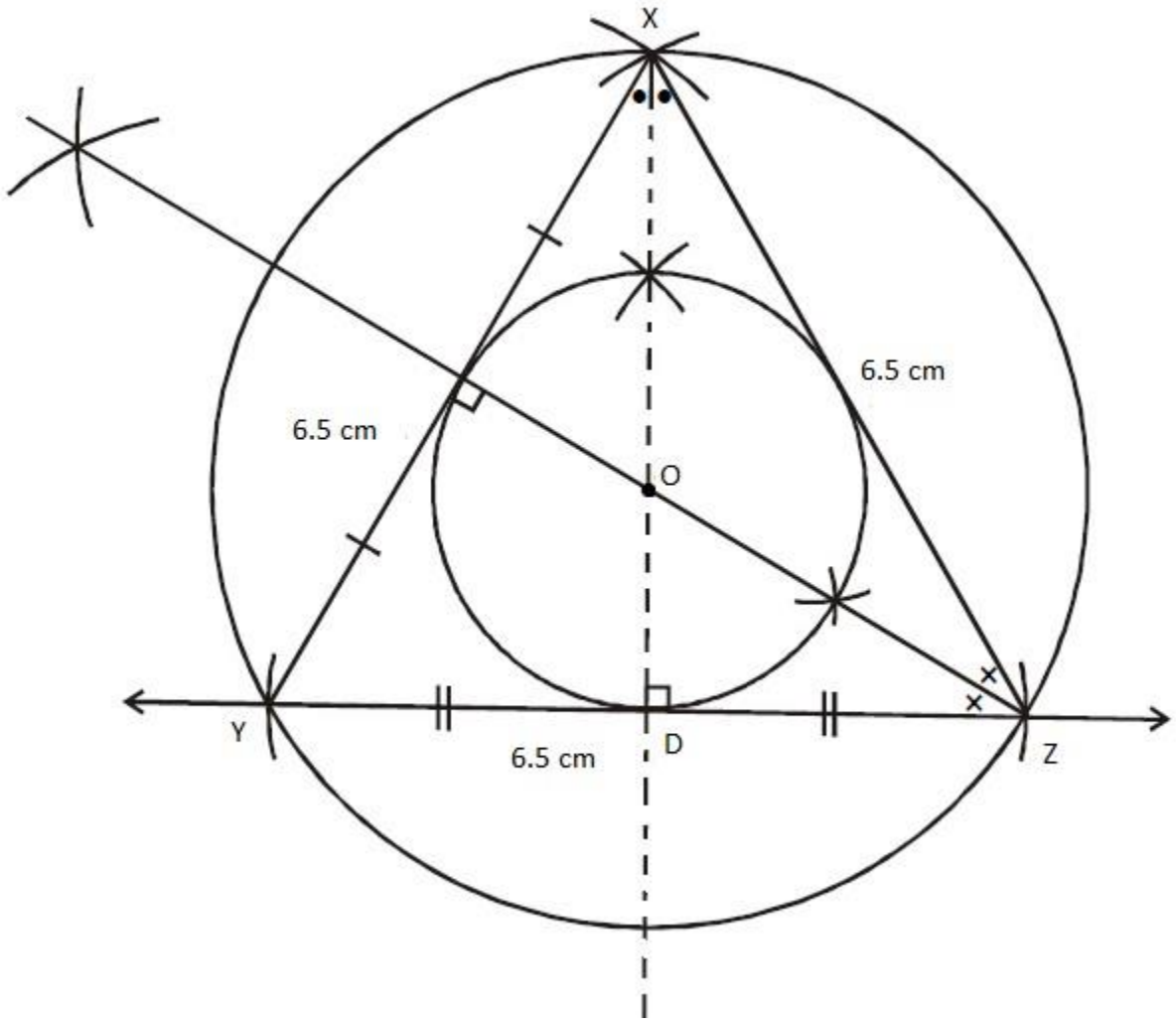
∠2 = ∠4 (corresponding angles on the same side of the transversal)

∠1 = ∠2 (AD os the angle bisector of ∠A)

Also, ∠4 = ∠3
Therefore, AC = AE….(i) (sides opposite to equal angles are equal)
In triangle ABD,
EC || AD
By BPT,
BD/CD = AB/AE
BD/CD = AB/AC [From
(i)] Hence proved.

(ii) Construct the circumcircle and incircle of an equilateral ΔXYZ with side 6.5 cm and centre O. Find the ratio of the radii of incircle and circumcircle.

Solution:



Radius of incircle = OD = 2 cm
Radius of circumcircle = OX = 4 cm
Radius of incircle/ Radius of circumcircle = 2/4
= ½ Hence, the required ratio is 1 : 2.

(iii) A(5, 4), B(-3, -2) and C(1, -8) are the vertices of a triangle ABC. Find the equation of median AD and the line parallel to AB passing through point C.

Solution:

Given,

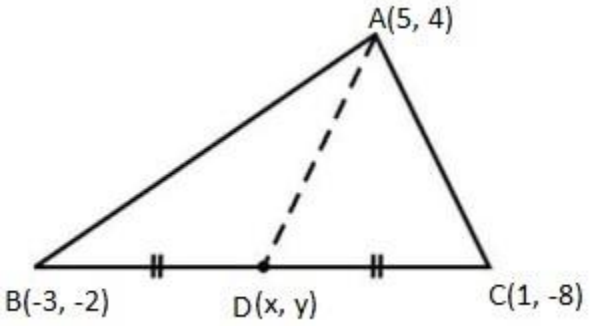
Vertices of a triangle ABC are A(5, 4), B(-3, -2) and C(1,-8).

$A(5, 4) = (x_1, y_1)$

$B(-3, -2) = (x_2, y_2)$

$C(1, -8) = (x_3, y_3)$

Let D(x, y) be the median of triangle ABC.



D is the midpoint of BC. $D(x, y) = [(x_2 + x_3)/2, (y_2 + y_3)/2]$

$= [(-3 + 1)/2, (-2 - 8)/2]$

$= (-2/2, -10/2)$

$= (-1, -5)$

$D(-1, -5) = (x_4, y_4)$

Equation of median AD is

$(x - x_1)/ (x_4 - x_1) = (y - y_1)/(y_4 - y_1)$

$(x - 5)/ (-1 - 5) = (y - 4)/ (-5 - 4)$

$(x - 5)/(-6) = (y - 4)(-9)$

$-9(x - 5) = -6(y - 4)$

$-9x + 45 = -6y + 24$

$9x - 45 - 6y + 24 = 0$

$9x - 6y - 21 = 0$

$3(3x - 2y - 7) = 0$

$3x - 2y - 7 = 0$

Hence, the required equation of median AD is $3x - 2y - 7 = 0$.

We know that the line parallel to AB = Slope of AB

Slope of AB $= (y_2 - y_1)/ (x_2 - x_1)$

$= (-2 - 4)/ (-3 - 5)$

$= -6/-8$

$= 3/4$

Thus, $m = 3/4$

Equation of the line parallel to AB and passing through the point C(1, -8) is $y - y_3 = m(x - x_3)$ $y - (-8) = (3/4)(x - 1)$ $4(y + 8)$

$= 3(x - 1)$

$4y + 32 = 3x - 3$

$3x - 3 - 4y - 32 = 0$
$3x - 4y - 35 = 0$

MSBSHSE Class 10 Mathematics Question Paper 2017 Algebra Paper with Solutions

PART - A

1. Attempt any five of the following subquestions:

[5] (i) State whether the following sequence is an Arithmetic Progression or not: 3, 6, 12, 24,.....

Solution

: Given,
3, 6, 12, 24,....
First term = 3
Second term - First term = 6 - 3 = 3
Third term - Second term = 12 - 6 = 6
Common difference is not the same throughout the sequence. Hence, the given sequence is not an Arithmetic progression.

(ii) If one root of the quadratic equation is $3 - 2\sqrt{5}$, then write another root of the equation.

Solution:

Given,
One root of the quadratic equation is $3 - 2\sqrt{5}$ The other root will be the conjugate of the first one. Hence, the other root is $3 + 2\sqrt{5}$.

(iii) There are 15 tickets bearing the numbers from 1 to 15 in a bag and one ticket is drawn from this bag at random. Write the sample space (S) and n(S).

Solution:

Given that a bag contains 15 tickets bearing the numbers from 1 to 15. Sample space = S = {1, 2, 3, 4, 5,...., 15} n(S) = 15

(iv) Find the class mark of class 35 - 39.

Solution:

Given class:
35 - 39
Class mark = [Upper class limit + Lower class limit]/2
= (39 + 35)
= 74/2
= 37

(v) Write the next two terms of A.P. whose first term is 3 and the common difference is 4.

Solution:
Given,
First term = a = 3
Common difference = d = 4
Second term = a + d = 3 + 4 = 7
Third term = a + 2d = 3 + 2(4) = 3 + 8 = 11
Hence, the next two terms of the AP are 7 and 11.

(vi) Find the values of a, b, c for the quadratic equation $2x^2 = x + 3$ by comparing with standard form $ax^2 + bx + c = 0$.

Solution:
Given,
$2x^2 = x + 3$
$2x^2 - x - 3 = 0$
Comparing with the standard form $ax^2 +$
$bx + c = 0$, $a = 2$, $b = -1$, $c = -3$

2. Attempt any four of the following subquestions:
[8] (i) Find the first two terms of the sequence for which S_n is given below:
$S_n = n^2(n + 1)$.

Solution:
Given,
$S_n = n^2(n + 1)$
When n = 1,
$S_1 = 1^2(1 + 1) = 1(2) = 2$
When n = 2
$S_2 = 2^2(2 + 1) =$
$4(3) = 12$ $S_1 =$
$a_1 = 2$ $a_1 + a_2 =$
S2 $2 + a_2 = 12$
$a_2 = 12 - 2 = 10$
Therefore, the first term is 2 and the second term is 10.

(ii) Find the value of discriminant (Δ) for the quadratic equation:
$x^2 + 7x + 6 = 0$.

Soluti
on:
Given
, $x^2 +$
$7x + 6$
$= 0$
Comparing with the standard form $ax^2 +$
$bx + c = 0$, $a = 1$, $b = 7$, $c = 6$
Discriminant $(\Delta) = b^2 - 4ac$

$= (7)^2 - 4(1)(6)$
$= 49 - 24$
$= 25$

(iii) Write the equation of the X-axis. Hence, find the point of intersection of the graph of the equation $x + y = 5$ with the X-axis.

Solution:
The equation of X-axis is $y = 0$
Given, $x + y = 5$
Substituting $y = 0$,
$x + 0 = 5$
$x = 5$
The point of intersection of the graph represents the equation $x + y = 5$ with the X-axis is (5, 0).

(iv) For a certain frequency distribution, the values of Assumed mean (A) = 1300, $\sum f_i d_i = 900$ and $\sum f_i = 100$. Find the value of mean (x bar).

Solution:
Given,
Assumed mean (A) = 1300
$\sum f_i d_i = 900$ and $\sum f_i = 100$
Mean (x bar) = A + $(\sum f_i d_i / \sum f_i)$
$= 1300 + (900/100)$
$= 1300 + 9$
$= 1309$

(v) Two coins are tossed simultaneously. Write the sample space (S), n(S), the following event A using set notation, and n(A), where 'A is the event of getting at least one head.'

Solution:
Given,
Two coins are tossed simultaneously.
Sample space = {HH, HT, TH, TT}
n(S) = 4
A = The event of getting at least one head

A = {HT, TH, HH}
n(A) = 3

(vi) Find the value of k for which the given simultaneous equations have infinitely many solutions: kx + 4y = 10; 3x + 2y = 5.

Solu
tion
: kx
+ 4y
=
10
3x + 2y = 5
Comparing with the standard form $a_1x + b_1y + c_1 = 0$ and a_2x
$+ b_2y + c_2 = 0$, $a_1 = k$, $b_1 = 4$, $c_1 = -10$ $a_2 = 3$, $b_2 = 2$, $c_2 = -5$
Condition for infinitely many solutions:
$a_1/a_2 =$
$b_1/b_2 =$
c_1/c_2 k/3 =
4/2 = -
10/-5 k/3
= 2/1 =
2/1 k/3 =
2 k = 6

3. Attempt any three of the following subquestions:
[9] (i) How many three-digit natural numbers are divisible by 5?

Solution:
Three-digit natural numbers divisible by 5 are:
100, 105, 110, 115,...., 995
This is an AP with a = 100, d = 5 and $a_n = 995$.
nth term of
an AP $a_n =$
a + (n - 1)d
995 = 100
+ (n - 1)5
(n - 1)5 =
995 - 100
n - 1 =
895/5 n =
179 + 1 n
= 180
Hence, the number of three-digit natural numbers which are divisible by 5 are 180.

(ii) Solve the following quadratic equation by factorization method: $3x^2 - 29x + 40 = 0$.

Solution:
Given,
$3x^2 - 29x + 40 = 0$

$3x^2 - 24x - 5x + 40 = 0$
$3x(x - 8) - 5(x - 8) = 0$
$(3x - 5)(x -$
$8) = 0\ 3x -$
$5 = 0, x - 8$
$= 0\ x = 5/3,$
$x = 8$

(iii) Solve the following simultaneous equations by using Cramer's rule:
$3x -$
$y =$
$7; x$
$+$
$4y$
$=$
$11.$

Solution:
Gi
ve
n,
3x
- y
= 7
x +
4y
=
11

$$D = \begin{vmatrix} 3 & -1 \\ 1 & 4 \end{vmatrix} = (3 \times 4) - (-1 \times 1) = 12 + 1 = 13 \neq 0$$

$$D_x = \begin{vmatrix} 7 & -1 \\ 11 & 4 \end{vmatrix} = (7 \times 4) - (-1 \times 11) = 28 + 11 = 39$$

$$D_y = \begin{vmatrix} 3 & 7 \\ 1 & 11 \end{vmatrix} = (3 \times 11) - (7 \times 1) = 33 - 7 = 26$$

Using
Cramer's
rule, $x = D_x/D$
$= 39/13 = 3\ y$
$= D_y/D =$
$26/13 = 2$
Therefore, the solution of the given pair of equations is (x, y) =(3, 2).

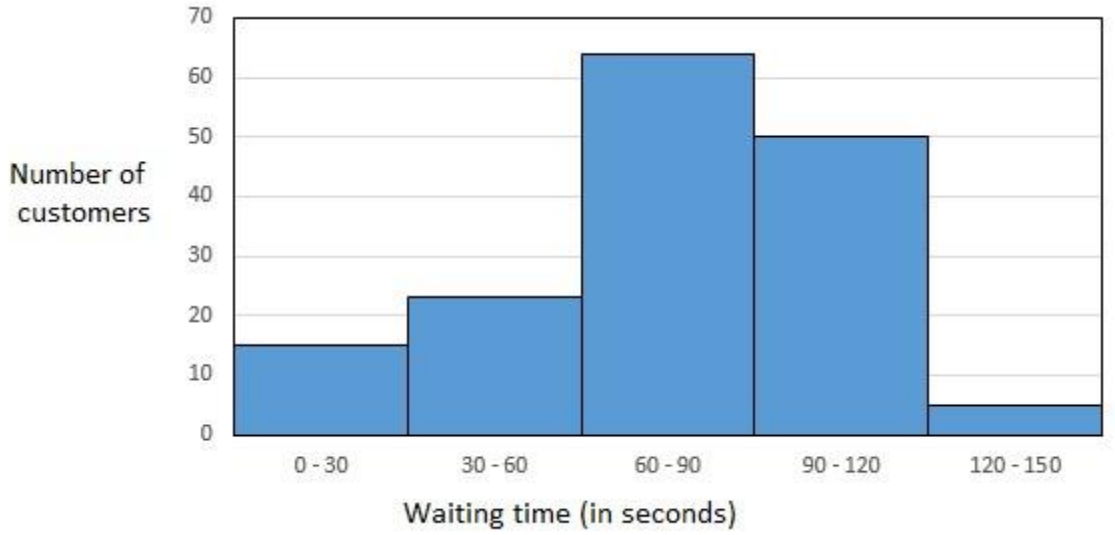
(iv) Two dice are thrown. Find the probability of the event that the product of numbers on their upper faces is 12.

Solution:
Give,
Two dice are thrown.
Sample pace (S) = {(1, 1), (1, 2), (1, 3), (1, 4), (1, 5), (1, 6)
(2, 1), (2, 2), (2, 3), (2, 4), (2, 5), (2, 6)
(3, 1), (3, 2), (3, 3), (3, 4), (3, 5), (3, 6)
(4, 1), (4, 2), (4, 3), (4, 4), (4, 5), (4, 6)
(5, 1), (5, 2), (5, 3), (5, 4), (5,
5), (5, 6) (6, 1), (6, 2), (6, 3),
(6, 4), (6, 5), (6, 6)} n(S) = 36
Let A be the event of getting the product of numbers on their
upper faces is 12. A = {(2, 6), (6, 2), (3, 4), (4, 3)}
n(A) = 4
P(A) = n(A)/n(S)
= 4/36
= 1/9
Hence, the required probability is 1/9.

(v) The following is the frequency distribution of waiting time at the ATM centre; draw histogram to represent the data:

Waiting time (in seconds)	Number of customers
0 - 30	15
30 - 60	23
60 - 90	64
90 - 120	50
120 - 150	5

Solution
:
Histogra
m
Scale:
x - axis: 1 cm = 30
seconds y - axis: 1
cm = 10 customers



4. Attempt any two of the following subquestions: **[8]**

(i) Three horses A, B, and C are in a race, A is twice as likely to win as B and B is twice as likely to win as C. What are their probabilities of winning?

Solution:

Let P(A), P(B), and P(C) be the probability of winning in a race by three horses A, B, and C respectively. According to the given,

$P(A) = 2P(B)$

$P(B) = 2P(C)$

Now, $P(A) = 2P(B) = 2[2P(C)] = 4P(C)$

We know that,

$P(A) + P(B) + P(C) = 1$

$4P(C) + 2P(C) + P(C) = 1$

$7P(C) = 1$

$P(C) = 1/7$

Therefore,

$P(B) = 2/7$

$P(A) = 4/7$

Hence, the required probabilities are 4/7, 2/7 and 1/7.

(ii) The following is the distribution of the size of certain farms from a taluka (tehsil):

Size of Farms (in acres)	Number of Farms
5 - 15	7
15 - 25	12
25 - 35	17
35 - 45	25

45 - 55	31
55 - 65	5
65 - 75	3

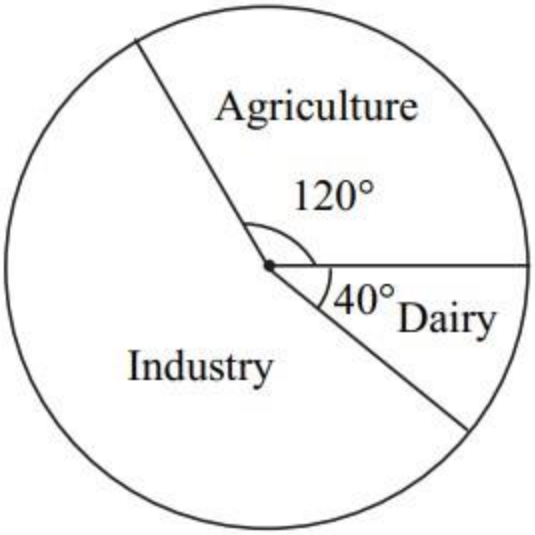
Find the median size of farms.

Solution:

Size of Farms (in acres)	Number of Farms (frequency)	Cumulative frequency
5 - 15	7	7
15 - 25	12	19
25 - 35	17	36
35 - 45	25	61
45 - 55	31	92
55 - 65	5	97
65 - 75	3	100

N/2 = 100/2 = 50
Cumulative frequency greater than and nearest to 50 is 61, which lies in the class interval 35 - 45.
Median class = 35 - 45
The lower limit of the median class = l = 35
Frequency of the median class = f = 25
Cumulative frequency of the class preceding the median class = cf = 36
Class height = h = 10
Median = l + {[(N/2) - cf]/ f} × h
= 35 + [(50 - 36)/ 25] × 10
= 35 + (140/25)
= 35 + 5.6
= 40.6

(iii) The following pie diagram represents the sector-wise loan amount in crores of rupees distributed by a bank. From the information answer the following questions:



a. If the dairy sector receives Rs. 20 crores, then find the total loan disbursed.
b. Find the loan amount for the agriculture sector and also for the industrial sector.
c. How much additional amount did the industrial sector receive than the agriculture sector?

Solution:

Sector	Measure of a central angle
Agriculture	120°
Dairy	40°
Industry	360 - (120° + 40°) = 200°
Total	360°

a. Dairy sector = Rs. 20 crores
40° = Rs. 20 crores
Total amount = (360°/ 40) × 20 = Rs.
180 crores **b.** The loan amount for the
agriculture sector
= (120°)/ 360°) × 180
= Rs. 60 crores
The loan amount for the industrial sector
= (200°)/ 360°) × 180
= Rs. 100 crores
c. The additional amount received by the industrial sector than the
agricultural sector = Rs. (100 - 60) crores
= Rs. 40 crores

5. Attempt any two of the following subquestions: [10]
(i) If the cost of bananas is increased by Rs. 10 per dozen, one can get 3 dozen less for Rs. 600. Find the original cost of one dozen bananas.

Solution:

Let x be the cost (in Rs.) of one dozen bananas. Let y be the number of bananas can get for Rs. 600.

$xy = 600$

$y = 600/x$ ....(i)

According to the given,

$(x + 10)(y - 3) = 600$

$(x + 10)[(600/x) - 3] = 600$ [from (i)]

$(x + 10)[(600 - 3x)/ x] = 600$

$(x + 10)(600 - 3x) = 600x$

$600x - 3x^2 + 6000 - 30x = 600x$

$3x^2 - 6000 + 30x = 0$ $3(x^2 + 10x - 2000) = 0$

$x^2 + 10x - 2000 = 0$ $x^2 + 50x - 40x - 2000 = 0$

$(x + 50)(x - 40) = 0$ $x = -50, x = 40$

Cost cannot be negative.

Therefore, x = 40

Hence, the original cost of one dozen bananas is Rs. 40.

(ii) If the sum of first p terms of an A.P. is equal to the sum of first q terms, then show that the sum of its first (p + q) terms is zero where $p \neq q$.

Solution:

We know that the sum of the first n terms of an AP is $S_n = n/2 [2a + (n - 1)d]$ Given,

$S_p = S_q$ $p/2 [2a + (p - 1)d] = q/2 [2a + (q - 1)d]$ $p[2a + (p - 1)d] = q[2a + (q - 1)d]$ $2ap + (p - 1)dp = 2aq + (q - 1)dq$

$2ap - 2aq + (p - 1)dp - (q - 1)dq = 0$

$2a(p - q) + d [p^2 - p - q^2 + q] = 0$

$2a(p - q) + d [p^2 - q^2 - (p - q)] = 0$

$2a(p - q) + d [(p + q)(p - q) - 1(p - q)] = 0$

$2a(p - q) + d(p - q)[p + q - 1] = 0$

$(p - q) [2a + d(p + q - 1)] = 0$

$2a + (p + q - 1)d = 0$....(i)

Sum of the first (p + q) terms

$S_{(p + q)} = (p + q)/2 [2a + (p + q - 1)d]$

$= (p + q)/2 [0]$ (from (i))

$= 0$

Hence proved.

(iii) Solve the following simultaneous equations:
(1/3x) - (1/4y) + 1 = 0;
(1/5x) + (1/2y) = 4/15

Solution:
Given,
(1/3x) - (1/4y) + 1 = 0
(1/5x) + (1/2y) = 4/15
Substituting 1/x = a and 1/y = b,
(⅓)a - (¼)b = -1
(4a - 3b)/12 = -1
4a - 3b = -12….(i)
And
(⅕)a + (½)b = 4/15
(2a + 5b)/ 10 = 4/15
2a + 5b = 8/3….(ii)
(i) - (ii) × 2,
4a - 3b - (4a + 10b) = -12 - (16/3)
-3b - 10b = (-
36 - 16)/3 -
13b = - 52/3
b = 4/3
Substituting b = 4/3 in (ii),
2a + 5(4/3) = 8/3
2a =
(8/3) -
(20/3) 2a
= -12/3 a
= -4/2 a
= -2
Now,
1
/
x
=
a
1
/
x
=
-
2
x
=
-
½
1
/
y

=
b
1
/
y
=
4
/
3
y
=
¾
Therefore, the solution of the given system of equations is x = -½ and y = ¾.