



Wishing you all the best for your

10th Board examination

GREETINGS



Best of Luck



॥ “विद्या धनं सर्वधनप्रधानम्” ॥



**THE KPES SCIENCE ACADEMY**

Higher Secondary Science (Self Finance)

**TEAM SCIENCE GURU**

HOSTEL FACILITY

11<sup>th</sup> - 12<sup>th</sup> **SCIENCE** (ENGLISH MEDIUM & ગુજરાતી માધ્યમ)

NEET | JEE (Mains + Advanced) | Guj - CET | Guj - Board

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**Nr. Leela Circle, Kaliyabid, Bhavnagar.**

**NOTE:** Do attend the guidance seminar  
“WHAT AFTER STD X” on 19.03.2026 (Thursday)

Appear for the entrance examination of  
std XI science on 22.03.2026(Sunday)

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# THE KPES SCIENCE ACADEMY

Higher Secondary Science (Self Finance)

TEAM SCIENCE GURU



PHYSICS (H.O.D)

**Mori Sir**

M.Sc., B.Ed.  
11 + Years of teaching  
experience



BIOLOGY (H.O.D)

**Bhavesh Chhotala**

M.Sc., B.Ed.  
H.O.D. (Guj. Dept.)  
10 + Years of teaching  
experience



ADMINISTRATOR

**Pranav Devluk**

Administrative of  
Team Science Guru  
15+ Years of Management  
experience



CHEMISTRY (H.O.D)

**Sheetal Patel**

M.Sc., PGDMLT  
11 + Years of teaching  
experience



MATHS (H.O.D)

**Gautam Sir**

M.Sc., Maths  
8 + Years of teaching  
experience

The first Demo batch for the std 11 science will start from 02.04.2026, Thursday  
To get registered for the Demo batch , please contact through the following means.



असभितान वीरु / वीरुकेर  
भाहिनी भाटे स्केर एरु.

1. Students can register in-person at the institute  
from 8:00 am to 5:00pm

2. Students can register by scanning the QR code given →



For more detailed information, Parents and students can visit the institute and have the counselling session with the main faculties of science stream. Mon-Sun: 8:00am to 5:00pm

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# THE KPES SCIENCE ACADEMY

Higher Secondary Science (Self Finance)

TEAM SCIENCE GURU

## : शुभेच्छा संदेश :

In today's Educational world, where the competitive exam starts from std-V, the std -X students are going to appear for the Board examination for the first time after working hard throughout the year.

Bhavnagar is emerging as an educational hub,  
so THE KPES SCIENCE ACADEMY & TEAM SCIENCE GURU  
has prepared a Question Bank for the students of  
Std -X appearing for the board examination (Feb-2026) to  
score good marks in all the main subjects.

In the emerging educational hub Bhavnagar, THE TEAM SCIENCE GURU in association with THE KPES ENGLISH SCHOOL is committed to provide the best students in the field of Medical & Engineering through science stream (XI-XII) with the lowest fees structure all over the Bhavnagar and are providing the Question Bank for the students of std X for their better results.

Best Guidance + Excellent Results = Pathway to Bright Future

Best wishes to all the students appearing for the std -X Board examination.

May your hard work and dedication bring you great results.



## THE KPES ENGLISH SCHOOL

Higher Secondary Science (Self Finance)

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# THE KPES SCIENCE ACADEMY

Higher Secondary Science (Self Finance)

TEAM SCIENCE GURU

## 11<sup>th</sup> - 12<sup>th</sup> Science

NEET | JEE (Main - Advanced) | Guj-CET | Guj-Board

English Medium / Gujarati Medium

HOSTEL FACILITY

TRANSPORTATION FACILITY

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Smart Board



CCTV



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Biology Lab



Chemistry Lab



Computer Lab



AC Classroom



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# PAPER SET-1

**SUB : ENGLISH**

**Total Marks : 80**

## SECTION – A

- ❖ **Read the following passage and select the appropriate answers from the options given below :** (02)

I started right away at the Montessori nursery school. I stayed there until I was six, at which time I started in the first form. In the sixth form my teacher was Mrs Kuperus, the headmistress. At the end of the year, we were both in tears as we said a heartbreaking farewell.

In the summer of 1941 Grandma fell ill and had to have an operation, so my birthday passed with little celebration.

Grandma died in January 1942. No one knows how often I think of her and still love her. This birthday celebration in 1942 was intended to make up for the other, and Grandma's candle was lit along with the rest.

1. The word 'form' used in this passage stands for.....  
(A) format                      (B) standard                      (C) drawing                      (D) type
2. Which sentence in the passage suggests that the writer was emotionally attached with her teacher?  
(A) I stayed there until I was six, at which time I started in the first form.  
(B) In the sixth form my teacher was Mrs Kuperus, the headmistress.  
(C) At the end of the year, we were both in tears as we said a heartbreaking farewell.  
(D) I started right away at the Montessori nursery school.

- ❖ **Read the following passage and answer the questions :** (03)

Let me put it more clearly, since no one will believe that a thirteen-year-old girl is completely alone in the world. And I'm not. I have loving parents and a sixteen-year-old sister, and there are about thirty people I can call friends. I have a family, loving aunts and a good home. No, on the surface I seem to have everything, except my one true friend. All I think about when I'm with friends is having a good time. I can't bring myself to talk about anything but ordinary everyday things. We don't seem to be able to get any closer, and that's the problem. Maybe it's my fault that we don't confide in each other. In any case, that's just how things are, and unfortunately they're not liable to change. This is why I've started the diary.

3. What will no one believe usually?
4. Is the girl really alone? How can you say so?
5. Why did the girl start writing the diary?

- ❖ **Fill in the blanks choosing the correct words given in the brackets: (Write only the answers.)** (05)

[casually, marshes, tamed, to collect, better]

Wehn I \_\_6\_\_ mentioned this to a friend, he as casually replied that I had \_\_7\_\_ get one in the Tigris \_\_8\_\_ for there they were as common as mosquitoes, and were often \_\_9\_\_ by the Arabs. We were going to Basra to the Consulate General \_\_10\_\_ and answer our mail from Europe.

- ❖ **Answer any three of the following questions in five to six sentence each: (06)**
11. Describe the destruction caused by hailstones in Lencho's fields. What were Lencho's feelings when the rain/hail had stopped?
  12. What did Mandela think for oppressor and oppressed?
  13. What are the elders the Goa nostalgic about?
  14. Why does Valli refuse to look out of the window on her way back?
  15. Neighbours must have a cordial relationship which Lomoy and Natalya do not have. Describe the first fight between them.

### SECTION-B

- ❖ **Read the following verse and answer the questions given below: (03)**

An ultimate shaking grief fixes the boy  
As he stands rigid, trembling, staring down  
All his young days into not intrude on him,  
A dime, another ball, is worthless.

16. How has the loss affected the boy?
17. What, according to the poet, is 'worthless'?
18. Explain 'An ultimate shaking grief fixes the boy'

- ❖ **Select the correct Figures of Speech from the options given below: (02)**

19. 'No sun bury its feet in shadow'  
(A) Personification (B) Litotes (C) Metaphor (D) Bot A and B
20. 'And the little yellow dog was sharp as Mustard'  
(A) Personification (B) Synecdoche (C) Simile (D) Apostrophe

- ❖ **Answer any three of the following questions in five to six sentences each: (06)**

21. What does the girl yearn for? What does this poem tellyou about Amanda?
22. Describe the fight between the dragon and the pirate.
23. "The forest that was empty." What would happen if the forest remains empty?
24. Explain : "The fog comes on little cat feet".
25. 'But if it had to perish twice'. Why does the poet use 'if in this line?

- ❖ **Read the following passage and answer the questions: (03)**

The next year his science fair project was testing the theory that viceroy butterflies copy monarchs. The theory was that viceroys look like monarchs because monarchs don't taste good to birds. Viceroys, on the other hand, do taste good to birds. So the more they look like monarchs, the less likely they are to become a birds's danner.

Ebright's project was to see whether, in fact, birds would eat monarchs. He found that a starling would not eat ordinary bird food. It would eat all the monarches it could get. (Ebright said later research by other people showed that viceroys

probably do copy the monarch). This project was placed first in the zoology division and third overall in the country science fair.

- 26. What was Ebright's science fair project the next year?
- 27. How are the two types of butterfly's differe from each other?
- 28. What did Ebright conclude in his perject?

❖ **Read the following passage and answer the questions: (02)**

Bishamber Nath was a well-to-do grocer. He came with a big party of friends and relations with him for the wedding. A brass-band playing apopular tune from an Indian film headed the procession, with the bridgroom riding a decorated horse. Ramal was overjoyed to see such pomp and splendour. He had never dreamt that his fourth daughter would have such a grand wedding. Bholi's elder sisters who had come for the occasion were envious of her luck.

When the auspicious moment came the priest said, "Bring the bride."

Bholi, clad in a red silken bridal dress, was led to the bride's place near the sacred fire.

"Garland the bride," one of his friends prompted Bishamber Nath.

- 29. What had Ramlal never dreamt?
- 30. How was Bholi led near the sacred fire?

**SECTION-C**

❖ **Rectify the errors in the given passage : (04)**

I have delivered a small talk

- 31. and I will endup in a saying \_\_\_\_\_
  - 32. by Henry David thoreau, which syas, \_\_\_\_\_
  - 33. 'what lies before us and that lies' \_\_\_\_\_
  - 34. after us is a small matter compared to \_\_\_\_\_
- what lies within us? \_\_\_\_\_

❖ **Punctuate the following passage appropriately: (02)**

35. It's me. 36. shouted Valli. 37. I'm the one who has to get on 38.

❖ **Fill in the blanks with porper articles, conjunctions and prepositions: (Write only the answers.) (04)**

[behind, across, about, in front of]

Paris was 39. 150 kilometres 40. me when. I saw the clouds. Strom clouds. They were huge. They looked like black mountains standing 41. me 42. the sky.

❖ **Convert the following into Indirect form of narration: (03)**

"Listen, child," said the voice.

"You shouldn't stand like that. Sit down."

"There's nobody here who's a child," she said hautily. "I've paid my thirty paise like everyone else."

❖ **Do as directed:**

(05)

44. The aeroplane had no lights on its wings, so I could not see it flying next to me through the storm. (Select the correct use of 'since' in the sentence.)
- (A) The aeroplane had no lights on its wings sicne I could see it flying next to me through the room.
- (B) Since I could see it flying next to me thourgh the storm, the aeroplane had no light on its wings.
- (C) Since the aeroplane had no lights on its wings, I could not see it flying next to me through the storm.
- (D) Since the aeroplane had no lights on its wings, I could see it flying next to me through the storm.
45. They waited for Wanda to have fun with her. (Select the correct use of 'because'.)
- (A) They wanted to have fun with Wanda because they waited for her.
- (B) They waited for Wanda because to have fun with her.
- (C) They waited for Wanda because she wanted to have fun with them.
- (D) They waited for Wanda because they wanted to have fun with her.
46. I was happy to be alone high up above the sleeping countryside. (Select the correct exclamatory sentence.)
- (A) What happy I was to be alone high up above the sleeping countryside !
- (B) How a happy I was to be alone high up above the sleeping countryside !
- (C) What a happy I was to be alone high up above the sleeping countryside !
- (D) How happy I was to be alone high up above the sleeping countryside !
47. What a story ! (Select the correct Assertive sentence.)
- (A) It was a story. (B) They had not told any story.
- (C) They story was really unbelievable. (D) The story was endless.
48. She was too old to lift the bag. (Select the correct sentence removing 'too'.)
- (A) She was very old to lift the bag.
- (B) She was so old that she could not lift the bag.
- (C) She was not very old that she could not lift the bag.
- (D) She was really old but could lift the bag.

**SECTION-D**

❖ **Read the following passage and answer the questions given below:** (04)

Modern day situations and circumstances warrant people to think and act differently. There is no one set of ideas or arguments to suit a particular problem or crisis. Most of the time people are required to think and approach the problem in a unique way to arrive at a decision. It is here that Edward De Bono's Lateral thinking or Parallel Thinking has come to play a very major role in todya's decision making. In his theory he shows us how all aspects of a problem are to be viewed systematically and in a proper sequence. For this he has devised the 6 thinking Hats theory wherein each hat has a specific colour with a specific function to perform. The white hat is neutral and isconcerned with only facts and figures. All the relevant information is

gathered and given. The red hat depicts anger and emotion. This hat gives the emotional viewpoint. The black hat is serious. Black makes one become careful and cautious. It points out the weaknesses in a project. The yellow hat is bright and positive. It brings out all the positive aspects of a problem. The green hat is for growth, grass and abundance. This brings out the creative elements. The blue hat is calm and cool-the colour of the sky. Blue emerges as the controller, the organization of the thin process and use of the other hats. One wearing the blue hat controls all the other hats so generally it could be the Head.

49. Whose theory is discussed in this passage?
50. How many thinking hats are mentioned in the passage?
51. Which hat controls all other hats?
52. Give a suitable title to the passage.

**OR**

❖ **Read the following passage and answer the questions given below:** (04)

Conservation is a very difficult world And yet, these days it is often heard,  
So many times I wonder what is it meant  
When people keep saying, "Think of ENVIRONMENT"  
Is it something that grown up discuss?  
Like taxes and politics and all that fuss?  
Or is it something that we should know about?  
So I went to Papa, in order to find out  
He explained with patience and great care  
"Use water you need-not more than your share  
Walk out of the room-just turn off the light.  
This will help us make things just right.  
See the garbage is not thrown all over the place  
And for plastics and glass there is a separate place."

49. What do people talk about mostly these days?
50. What is called 'fuss' in this poem?
51. How did the child's father explain to him the concept of 'Environment'?
52. Write pairs of rhyming words from the poem.
53. You are Roshan / Roshani. Make a diary entry of your visit to your friend's farmhouse.

**OR**

53. You cleared all the rounds of Kaun Banega Crorepati. On the hot seat, you got a chance to talk with Mr. Amitabh Bachchan. Write at least four dialogues that you had with him. [04]
54. You are the Head boy / Head girl of your school. Prepare a notice to be displayed on the school notice board announcing interclass Garba competition to be held promotion. [04]

**OR**

54. You are very much aware of and have a great concern for health related issues. Prepare an awareness poster on 'Communicable Diseases and Sanitation'.

**SECTION -- E**

55. **Write a report on 'Selfie Mania' among the youngsters.** (04)
56. Write a letter to your friend making an appeal to avoid Chinese fire crackers and have a safe Diwali, free of sound and air pollution. (06)

**OR**

56. Write an e-mail to your friend informing him/her about the newly fitted Water Percolation System in your society and how it saves water.

57. **Write an essay in about 200 words on any one of the following:** (08)

• **Keeping a healthy Lifestyle**

[What is a healthy lifestyle? – unable to keep – balanced meals – exercises – sleep – recreational activities – avoiding bad habits and unhealthy pursuits – conclusion]

• **Online Shopping v/s Offline Shop – ping**

[introduction – availability – variety – price check – return / refund policies – quality – pocket – friendliness – time factor – conclusion]

**OR**

57. **Write a story in about 200 words based on the inputs given below:**

An engineer – interview in a Multinational company – goes to cobbler – shoe polishing – tips for interview and salary – interview goes well – gets job – comes to know the real boss – awestruck

# PAPER SET-2

**SUB : ENGLISH**

**Total Marks : 80**

## SECTION – A

- ❖ **Read the following passage and select the appropriate answers from the options given below :** (02)

The young seagull was along on his ledge. His two brothers and his sister had already flown away the day before. He had been afraid to fly with them. Somehow when he had taken a little run forward to the brink of the ledge and attempted to flap his wings he became afraid. The great expanse of sea stretched down beneath, and it was such a long way down – miles down. He felt certain that his wings would never support him; so he bent his head and ran away back to the little hole under the ledge where he slept at night.

1. What made the seagull afraid?  
(A) To be alone on the ledge  
(B) His brothers and his sister teased him  
(C) The ledge was too high above the sea  
(D) His wings were very weak
2. Which of the following is closer in meaning to the term, 'on the brink of' ?  
(A) 'at the end of' (B) 'on the verge of'  
(C) 'in front of' (D) 'over the edge of'

- ❖ **Read the following passage and answer the questions :** (03)

Marriage gifts are meaningless without the sweet bread known as the bol, just as a party or a feast loses its charm without bread. Not enough can be said to show how important a baker can be for a village. The lady of the house must prepare sandwiches on the occasion of her daughter's engagement. Cakes and bolinhas are a must for Christmas as well as other festivals. Thus, the presence of the baker's furnace in the village is absolutely essential.

The baker or bread-seller of those days had a peculiar dress known as the kabai. It was a single-piece long frock reaching down to the knees.

3. When does a party or a feast lose its charm?
4. Why is the presence of the baker's furnace in every village essential?
5. Describe kabai in one sentence.

- ❖ **Fill in the blanks choosing the correct words given in the brackets: (Write only the answers.)** (05)

[extraordinary, disaster, humanity, glory, liberty]

Today, all of us do, by our presence here confer \_\_ 6 \_\_ and hope to newborn \_\_ 7 \_\_. Out of the experience of an \_\_ 8 \_\_ human \_\_ 9 \_\_ that lasted too long, must be born a society of which all \_\_ 10 \_\_ will be proud.

❖ **Answer any three of the following questions in five to six sentence each: (06)**

11. Lencho had immense faith in God. Comment.
12. Describe the narrator's experience as he flew the aeroplane into the storm.
13. How did Valli save money for her first journey? Was it easy for her?
14. How did Buddha convey to Kisa the truth of life and death?
15. Why does Maxwell say the airhostess was, 'the very queen of her kind' ?

**SECTION-B**

❖ **Read the following verse and answer the questions given below: (03)**

If strolling forth, a beast you view,  
Whose hide with spots in peppered,  
As soon as he has leapt on you,  
You'll know it is the Leopard. 'Twill  
do no good to roar with pan,  
He'll only lep and lep again.

16. When does one come to know that it is a leopard?
17. What is the meaning of 'it will do no good'?
18. What does the leopard keep doing repeatedly?

❖ **Select the correct Figures of Speech from the options given below: (02)**

19. '\_\_\_\_\_ a mermaid, drifting blissfully'.  
(A) Internal Rhyme (B) Metaphor (C) Synecdoche (D) Metonymy
20. 'They do not lie awake in the dark ...'.  
(A) Metaphor (B) Synecdoche (C) Oxymoron (D) Internal Rhyme

❖ **Answer any three of the following questions in five to six sentences each: (06)**

21. Comment on the ending of the poem – 'Fire and Ice'.
22. How does the poet create humour in the poem – 'How to Tell Wild Animals'?
23. What does the poet say the boy is learning from the loss of the ball ? Try to explain this in your own words
24. Why does Amanda wish to be a mermaid, an orphan, or Rapunzel?
25. Why did Custard cry for a nice, safe cage? Why is the dragon called a 'cowardly dragon' ?

❖ **Read the following passage and answer the questions: (03)**

At the age of twenty-two, a former 'scout of the year' excited the scientific world with a new theory on how cells work, Richard H. Ebright and his college room-mate explained the theory in an article in the proceedings of the National Academy of Science.

It was the first time this important scientific journal had ever published the work of college students. In sports, that would be like making the big leagues at the age of fifteen and hitting a home run your first time at bat. For Richard Ebright, it was the first in a long string of achievements in science and other fields. And it all started with butterflies.

An only child, Ebright grew up north of Rading, Pennsylvania. "there wans't much I could do there." he said. "I certainly couldn't play football or baseball with a team of one. But there was one thing I could do – collect things."

So he did and did he ever ! Beginning in kindergarten. Ebright collected butterflies with the same determination that has marked all his activities. He also collected rocks, fossile, and coins. He became an eager astronomer. too. sometimes star-gazing all night.

- 26. What was the article in the scientific journal?
- 27. What did Ebright use to do while in Pennsylvania?
- 28. What were Ebright's activities in kindergarten?

❖ **Read the following passage and answer the questions: (02)**

"What's the matter with you, you fool?" shouted Ramlal. "I am only taking you to school." The he told his wife, "Let her wear some decent clothes today, or else what will the teachers and the other schoolgirls think of us shen they see her?"

New clothes had never been made for Bholi. The old dresses of her sisters were passed on to her. No one cared to mend or wash her clothes. But today she was lucky to receive a clean dress which had shrunk after many washings and no longer fitted Champa. She was even bathed and oil was rubbed into her dry and matted hair. Only then did she begin to believe that she was being taken to a place better than her home!

- 29. Why, according to Ramlal, should Bholi wear some decnet clothes?
- 30. When did Bholi begin to believe that she was being taken to place better than her home?

**SECTION-C**

❖ **Rectify the errors in the given passage : (04)**

- 31. That evening, before I had finished \_\_\_\_\_
- 32. the some of my homework, the note \_\_\_\_\_
- 33. to the essay caught my eye. I began \_\_\_\_\_
- 34. thought about the subject while \_\_\_\_\_
- \_\_\_\_\_ chewing the tip of my fountain pen. \_\_\_\_\_

❖ **Punctuate the following passage appropriately: (02)**

\_\_ 35 \_\_ CHAI-GARAM ... garam-chai \_\_ 36 \_\_ a vendor called out in a high-pitched voice. He came up to their window and asked \_\_ 37 \_\_ Chai, sa'ab \_\_ 38 \_\_.

❖ **Fill in the blanks with porper articles, conjunctions and prepositions: (Write only the answers.) (04)**

**[the, at, unitl, at which]**

I started right away \_\_ 39 \_\_ the Montessori nursery school. I stayed there \_\_ 40 \_\_ I was six, at \_\_ 41 \_\_ time I started in the first form. In \_\_ 42 \_\_ sixth form my teacher was Mrs Kuperus, the headmistress.

❖ **Convert the following into Indirect form of narration:** (03)

"Now we're really going to get some water, woman." Lencho said.

"Yes, |God willing."

On wathcing the rain, Lencho exclaimed, "These aren't raindrops falling from the sky, they are new coins."

❖ **Do as directed:** (05)

44. The young seagull was too afraid to fly. (Select the correct sentence without 'too'.)  
(A) The young seagull was so afraid that he could fly.  
(B) The young seagull was so afraid that he couldn't fly.  
(C) The young seagull was very afraid to fly.  
(D) The young seagull was so afraid to fly.
45. His first flight had been made by him. (Select the correct Active Voice.)  
(A) He has made his first flight. (B) He made his first flight.  
(C) He had made his first flight. (D) His first flight was made by him.
46. I hope it passes quickly. (Select the correct Question-tag.)  
(A) I hoe it passess quickly, didn't I? (B) I hope it passes quickly, don't I?  
(C) I hope it passes quickly, dosen't it? (D) I hope it passes quickly, didn't it?
47. What a story ! (Select the correct Assertive sentence.)  
(A) It was a story (B) It was a strange story indeed.  
(C) The story was trange. (D) There as a great story.
48. Let me put is more clearly. (Select correct use of 'Allow' in this sentence.)  
(A) Allow it more clearly by me. (B) Allow me put it more clearly.  
(C) Allow I to put it more clearly. (D) Allow me to put it more clearly.

**SECTION-D**

❖ **Read the following passage and answer the questions given below:** (04)

The clearest sign of growing intelligence is an increase of the quality which we call curiosity. Throughout history there have always been men and women who are not content to know what they are told, they wanted to find out more, they wanted to see if things could be done in a diffeent way, a better way. Without this curiosity, this desire to see more, there would be no progress. People simply go on thinking the same thoughts, and having the same ideas as their forefathers.

The people who think differently and act differently are very important people. But they are nearly always the people who get into trouble, because there is another quality in all of us that fights against our curiosity. It is the quality of laziness or the desire to go on doing things in the ways to which we have become, accustomed. As we grow older, we we form habits of thought, as well as habits of action, and it is a nuisance to have to change them. So we persuade orselves that it is wrong to change, and when some one comes along with different ides we do not like it. This is called conservatism – that is, the desire to keep things as they are.

49. What is our desire, to know more, called?  
50. What is conservatism?

51. Why is there a conflict between 'curiosity' and 'conservatism'?
52. Why is the desire to know more necessary for progress?

**OR**

❖ **Read the following passage and answer the questions given below: (04)**

Heaven from all creatures hides the book of fate.

All but the page prescribed, then present state:

From brutes what men, from men what spirits know

Or what could suffer being here below?

Thou lamb thy riot dooms to bleed today.

Had he thy reason, would he skip and play?

Pleased to the last, he crops the flowery food

And licks the hand just raised to shed his blood.

Oh, blindness of the future! Kindly given,

That each may feel the circle marked by Heaven;

Who sees with equal eye, as God of all,

A hero perish or a sparrow fall. —Pope

49. Give another expression for 'the book of fate'.
50. What does God hide? From whom?
51. What does the lamb do as it does not know its future?
52. How has God been kind to men and animals?
53. You rescued a girl from drowning in the river. Write a diary entry about your experience.

**OR**

53. Write a dialogue between two friends on the topic of air pollution. **[04]**
54. As the Manager of 'Excellent Coaching Centre' run by you, prepare a poster calling the attention of students desirous of attending HT, CPMT coaching to join your coaching centre. **[04]**

**OR**

54. You are the Secretary of the English Literary Association of Tagore Memorial School, Bhavnagar. Write out a notice on board, inviting names of those who would like to participate in the proposed inter-house debate, oratorical and elocution contest.

**OR**

54. You want to sell your newly built flat. Draft an advertisement in not more than 50 words to be inserted in the classified columns of 'The Times of India' giving all the necessary details.

**SECTION -- E**

55. You observed a rescue operation during flood in a river in Himachal Pradesh. Write a report based on your observation. **(04)**
56. Write an email to the editor of "The Times of India" on the need of a city library with Wi-Fi facilities for students. **(06)**

**OR**

56. You visited your friend's painting exhibition last week. Write a letter to your uncle describing your experiences of the same.

57. **Write an essay in about 200 words on any one of the following: (08)**

• **Importance of sports in Education**

[various subjects – sports – benefits – fitness and health]

• **Power of Press and Media**

[powerful medium of communication – uses – misuses – your opinion]

**OR**

57. **Write a story in about 200 words based on the inputs given below:**

The illiterate boy – caught for pickpocketing – sent to juvenile prison – forced to do lessons – becomes sullen rebellious – watches French comic film on T. V. during recreation hour – requested for coaching classes – a French tourist guide today.

THE KPES ENGLISH SCHOOL

# PAPER SET-1

Sub : SCIENCE

Total Marks : 80

## SECTION-A

- ❖ Answer the following Q. nos. 1 to 24 as directed : [1 mark each] [24]
- Choose the correct alternative from those alternatives given below for the following statements:
    1. An aqueous solution of which salt has pH of 7 ?  
(A)  $\text{Na}_2\text{CO}_3$       (B)  $\text{CH}_3\text{COONa}$       (C)  $\text{NH}_4\text{Cl}$       (D)  $\text{KNO}_3$
    2. Which of the following pair is not appropriate ?  
(A) Citric fruits – Citric acid      (B) Cured – Lactic acid  
(C) Sting of red ant – Methanoic acid      (D) Tomatoes – Tartaric acid
    3. In  $\text{CaCl}_2 + \text{X} \rightarrow \text{CaSO}_4 + 2 \text{NaCl}$ , X = \_\_\_\_\_  
(A)  $\text{Na}_2\text{SO}_4$       (B)  $\text{CaSO}_3$       (C)  $\text{Na}_2\text{SO}_3$       (D)  $\text{CaSO}_2$
    4. Which of the following solution is neutral ?  
(A) Juice of citrus fruits      (B) Lemon juice  
(C) Solution of washing soda      (D) An aqueous solution of salt – NaCl
    5. The pH values of aqueous solutions A, B, C and D are 1.9, 2.5, 2.1 and 3.0 respectively, then what will be the correct order of their acidic strength ?  
(A)  $A < C < B < D$       (B)  $D < C < B < A$   
(C)  $D < B < C < A$       (D)  $D > C > B > A$
    6. What colour does turmeric give with a basic substance ?  
(A) Yellow      (B) Brownish yellow  
(C) Reddish brown      (D) Black
  - Fill in the blanks so as to make each of the following statements true:
    7. \_\_\_\_\_ is the first member of alkane homologous series. (Ethane, Methane, Propane)
    8. The molecular formula of benzene is \_\_\_\_\_. ( $\text{C}_6\text{H}_8$ ,  $\text{C}_2\text{H}_5$ ,  $\text{C}_6\text{H}_6$ )
    9. Graphite structure is formed by the \_\_\_\_\_ arrays being placed in layers one above the other. (tetrahedral, hexagonal, square)
    10. \_\_\_\_\_ catalyst is used to manufacture vegetable ghee from vegetable oil. (Nickel, Gold, silver)
    11. \_\_\_\_\_ is the major component of biogas. (Ethane, Propane, Methane)
    12. Fluorine contains \_\_\_\_\_ carbon atoms. (80, 60, 100)
  - State whether the following statements are true or false:
    13. Magnesium burns in air with flickering blue flame.
    14. There are two ionic bonds in magnesium chloride.
    15. Copper reacts with dilute HCl.
    16. Bromine is a gas.
  - Answer the following question as directed:



## SECTION-C

- ❖ Answer any 6 (six) questions from the Q. nos. 38 to 46 within the limit of 60 to 80 words as directed: [3 marks each] [18]

38. What are different methods of contraception? Give its explanation.
39. State the method by which copper can be purified, describe its method with digram.
40. Draw a diagram of human brain, describe its forebrain.
41. Explain budding in brief.
42. Write the laws of refraction of light. Explain the refractiion of light through a rectangular galss slab with the diagram.
43. What is rancidity ? State the remedies to avoid rancidity.
44. Explain the extraction of metals at the low and at the activity middle of the series from their sulphide ores with necessary equations.
45. Distinguish between metallic elements and non-metallic elements on the basis of their physical properties.
46. What is the importance of DNA copying in reproduction? And why is DNA copying an essential part of the process of reproduction?

## SECTION-D

- ❖ Answer any 5 (five) question from the Q. nos. 47 to 54 within the limit of 90 to 120 words in detail as directed: [4 marks each] [20]

47. [1]. Explain the importance of pH in preventing the decay of teeth.  
[2]. Explain the importance of pH in self-defence by animals and pants through chemical warfare.
48. What is solenoid? Describe the characteristics of magnetic field produced by a current-carrying solenoid with diagram.
49. What is excretion ? Describe human excretory system with diagram.
50. Explain domestic electric circuit with diagram.
51. (a). Explain, how the ozone layer is getting depleted.  
(b). State your thoughts on redcuing the problem of waste disposal.
52. What are the two properties of carbon that enables it to form a large number of compounds ? Explain its properites.
53. Explain the mechanism of cleansing action of soap.
54. Why does clear sky appear blue? Why do stars twinkle?

# PAPER SET-2

Sub : SCIENCE

Total Marks : 80

## SECTION-A

- ❖ Answer the following Q. nos. 1 to 24 as directed : [1 mark each] [24]
- Choose the correct alternative from those alternatives given below for the following statements:
    1. Which of the following are unsaturated compounds ?  
[1]. Propane [2]. Propene [3]. Propyne [4]. Chloropropane  
(A) (1) and (2) (B) (2) and (4) (C) (3) and (4) (D) (2) and (3)
    2. The molecular formula of ethane is  $C_2H_6$ , there are \_\_\_\_\_  
(A) 6 covalent bonds (B) 7 covalent bonds  
(C) 8 covalent bonds (D) 9 covalent bonds
    3. Whose allotropic form is fullerene ?  
(A) Phosphorus (B) Sulphur (C) Carbon (D) Tin
    4. In human, the kidney is a part of \_\_\_\_\_ system.  
(A) nutritive (B) respiratory (C) excretory (D) translocation
    5. Which is the first member of alkyne homologous series ?  
(A) Ethyne (B) Ethene (C) Propyne (D) Methane
    6. Which of the following reaction takes place between alcohol and carboxylic acid in the presence of concentrated  $H_2SO_4$  ?  
(A) Hydrolysis (B) Beta-elimination (C) Combustion (D) Esterification
  - Fill in the blanks so as to make each of the following statements true:
    7. With the help of \_\_\_\_\_ rule the direction of a magnetic field can be decided. (right hand thumb, left and, right hand)
    8. \_\_\_\_\_ system is needed to carry food and oxygen from one place to another place. (Endocrine, Translocation, Excretion)
    9. Resin and gum are \_\_\_\_\_ materials of plants. (excretory, nutritive, constituent)
    10. Magnetic force acting on a current – carrying wire kept in a magnetic field is in \_\_\_\_\_ direction to the magnetic field. (parallel, perpendicular, same)
    11. The molecular formula of cinnabar is \_\_\_\_\_ (ZnS, HgS, CuO)
    12. A biological catalyst is called \_\_\_\_\_ (chemical, enzyme, hormone)
  - State whether the following statements are true or false:
    13. The chemical reaction between acid and water is called neutralisation.
    14. Farmers add gypsum if the pH of the soil is less than 6.5.
    15. pH of solution A is 6 and pH of solution B is 8, then solution B is more acidic than solution A.
    16. Electricity cannot pass through the aqueous solution of NaOH.



- [2]. Identify the brown coloured gas X.  
 [3]. State the type of this reaction.
39. Vrunda uses her 400 W fridge for 8 hours / day, how much will be the December month's light bill at Rs. 10 / kWh ?
40. [1]. By which chemical process is the reactivity series of the metals determined ?  
 [2]. Arrange them in descending order.  
 [3]. How are the metals at the top of the activity series extracted ?
41. State all the steps to balance the chemical equation :  $\text{Fe} + \text{H}_2\text{O} \rightarrow \text{Fe}_3\text{O}_4 + \text{H}_2$
42. What are the two properties of carbon that enables it to form a large number of compounds ? Explain its properties.
43. Explain the following principles for the conduction (of water) in the plants :  
 [1]. Conduction of water by roots.  
 [2]. Conduction of water by transpiration pull.
44. Out of three metals X, Y and Z, X reacts with cold water, Y reacts with hot water and Z reacts only with steam. Identify X, Y and Z and write the chemical equations for their reaction with water and arrange them in the ascending order of reactivity.
45. How is coordination in plants different from coordination in animals ?
46. An object of size 7 cm is placed at a distance of 27 cm in front of a concave mirror of focal length 18 cm. At what distance from the mirror should a screen be placed, so that a sharp focussed image is obtained ? Find the size and nature of the image.

### SECTION-D

- ❖ **Answer any 5 (five) question from the Q. nos. 47 to 54 within the limit of 90 to 120 words in detail as directed: [4 marks each] [20]**
47. What is meant by an indicator ? State its types and how will you test acid and base using olfactory indicator ? Explain it with an example.
48. (1). Are all bases soluble in Water ?  
 (2). By what name are water soluble bases known as ?  
 (3). State its properties.  
 (4). Give its examples.
49. Explain covalent bond formation in ammonia molecule ( $\text{NH}_3$ ) and chlorine molecule ( $\text{Cl}_2$ ).
50. Draw diagram of human respiratory system, describe its organs.
51. What is nutrition ? Describe its types.
52. Why does clear sky appear blue ? Why do stars twinkle ?
53. On which principle does the electromagnet used in electric bell and fan work ? State its uses and on which factors does its intensity depend ? And define it.
54. (1). Clarify the difference between food chain and food web with example.  
 (2). What is ozone ? How does it affect any ecosystem ?

# PAPER SET-1

Sub : Social Science

Total Marks : 80

## SECTION-A

❖ Answer the following Q. nos. 1 to 24 as directed : [1 mark each] [24]

• Match the following :

A

1. Kuchipudi
2. 5<sup>th</sup> June
3. Inlay work
4. Alamgirpur
5. Rashtriya Manav Sanghralalay

B

- A. World Environment Day
- B. Bhopal, MP
- C. Uttar Pradesh
- D. Bikaner
- E. World Wildlife Day
- F. Andhra Pradesh

• Say whether the following statements are True or False.

6. India ranks second in the world in railways.
7. Ashiqua is written by Amir Khusroo.
8. In India most of the Rhinos are found in Assam State.
9. Beti Bachavo movement is carried out by the government for the removal of sex discrimination.
10. Insurgency is a global problem.

• Fill in the blanks by choosing the correct option from the bracket.

11. Border Roads organisation was established in \_\_\_\_ . [1950, 1960, 1975]
12. Akashvani in \_\_\_\_ Languages transmits its programmes. [22, 23, 25]
13. Secondary sector is even called as \_\_\_\_ sector. [Service, Industrial, Agricultural]
14. \_\_\_\_ % of Indian villages face scarcity of pure drinking water. [30%, 40%, 50%]
15. Gujarat has coastline extending to about \_\_\_\_ kms. [1600, 1000, 1800]

• Choose the correct alternative and write the answer.

16. Government decides the prices of which Products ?  
(A) Vegetables (B) Medical Treatment  
(C) Petrol - Diesel (D) Dining in Hotel
17. Which of the statement regarding "Khet Talavadi" Presented in the classroom during the student debate is true ?  
(A) Jay : It is an important source to obtain water for Industries.  
(B) Yash : It is an Important part of "Grow more trees" movement.  
(C) Yug : It is a modern technique to increase soil erosion.  
(D) Daksh : It is a part of rain water Harvesting.
18. Which International organization is working for Human Development ?  
(A) UNESCO (B) UNICEF  
(C) FAO (D) UNDP

19. When is " World Elderly People" day celebrated ?  
(A) 8<sup>th</sup> March (B) 1<sup>st</sup> October (C) 1<sup>st</sup> April (D) 15<sup>th</sup> June
20. What is the process of coordinating land labour and capital for production called ?  
(A) Service (B) Planning  
(C) Controlling (D) Entrepreneurship

• **Answer in one or two words.**

21. What is the trade between two countries called ?  
22. Which is the biggest railway station in Gujarat ?  
23. What kind of activity is a mother raising her child called ?  
24. What services are included in the service sector ?

### SECTION-B

❖ **Write the answers to any nine (09) question out of thirteen (13) given below. (25 to 37 Questions) [2 marks each].** [18]

25. List the Physical Features of Mongoloid tribe.  
26. Give the idea of India's Cultural Heritage.  
27. 'Leather work is a very old art of India' Explain.  
28. Name the writers of 'Sangeet Ratnakar' and 'Sangeet Parijat'.  
29. Write a brief note on the Kailash Temple at Ellora.  
30. Write a short note on Qutub Minar.  
31. Explain the term : (1) Communal Forest (2) Social Forestry  
32. Why there is an increase in the usage of Non conventional source of energy today ?  
33. Explain : The base of modern world's development is iron.  
34. State the importance of chemical industry in Indian economy ?  
35. State the factors giving rise to Jute Industry in West Bengal.  
36. Why did the people of scheduled Tribes remain economically backward ?  
37. In India we find people of different religion staying together. Unity in diversity is visible give your opinion.

### SECTION-C

❖ **Write detailed answers of ny (06) out of nine (09) questions given below: (38 to 46 Questions) [3 marks each]** [18]

38. State the architectures developed during the Medieval India.  
39. Temples architecture is living heritage. Justify.  
40. Write a short note on India's ancient Vidhyapith Vallabhi.  
41. Explain the term : (1) Solitary resources (2) soil conservation (3) Soil Erosion  
42. What is called as Mountain soil ?  
43. State the advantages of Privatizaiton.  
44. Explain price rise is beneficial as well as hinderance in economic development.  
45. Who can complain in the consumer protection ? How ?  
46. Which schemes have been started by Gujarat, to give equality to women ? Explain.

## SECTION–D

❖ Answer any for questions from 47 to 53 below and questions no. 54 maps compulsory. [4 marks each] [20]

47. Write about the progress made by ancient India in mathematics.
48. Write a short not on : Astronomy of ancient India.
49. State the instiutional reforms introduced in the agriculture sector.
50. Describe the 'Wheat crop of India'.
51. Give the meaning of unemployment and explain types of unemployment.
52. What are the step taken by government for social security.
53. Explain the objectives of right to information and the process of obtaining information.
54. **Maps :**
  - (1). Flood affected Area – Nalsarovar
  - (2). Tea Producing state
  - (3). Mica Producing region
  - (4). Largest Railway Statiion of Gujarat.

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# PAPER SET-2

Sub : Social Science

Total Marks : 80

## SECTION-A

❖ Answer the following Q. nos. 1 to 24 as directed : [1 mark each] [24]

• Match the following :

- | A                           | B                       |
|-----------------------------|-------------------------|
| 1. Bandhani                 | A. Surendranagar        |
| 2. Tarnetar fair            | B. Rajasthan            |
| 3. Tuti – i – Hind          | C. Amir Khushroo        |
| 4. Dholaveera               | D. Ravindra Singh Bisht |
| 5. Guru of Swami vivekanand | E. Ramkrishna Paramhans |
|                             | F. Dhaka                |

• Say whether the following statements are True or False.

- Ancient Nalanda University was situated at Badgaon village of Patana district in Bihar.
- Lothal is situated in Dhandhuka Taluka of Ahmedabad district.
- 15<sup>th</sup> March is observed as 'World Consumer Rights Day'.
- Nepal ranks first in Human Development Index 2015.
- Terrorism is a global problem.

• Fill in the blanks by choosing the correct option from the bracket.

- \_\_\_\_\_ is the free port of Gujarat for entire year. [Kandla, Maundra, Porbandar]
- After 1991 trade balance of India is mostly \_\_\_\_\_. [Negative, High, Positive]
- In developing countries contribution from agriculture is \_\_\_\_\_. [10%, 25%, 60%]
- \_\_\_\_\_ created Prithviraj Raso. [Amir Khusroo, Kritivasa, Chandbardai]
- \_\_\_\_\_ constructed Fatehpur Sikri. [Humayun, Arungzeb, Akbar]

• Choose the correct alternative and write the answer.

- The process of connecting the economy of the country with the world economy is \_\_\_\_\_.  
(A) Privatization (B) Globalization (C) Liberalization (D) None of these
- Which day is celebration as National consumer day in India ?  
(A) 24<sup>th</sup> December (B) 24<sup>th</sup> March (C) 21<sup>st</sup> December (D) 21<sup>st</sup> March
- In which year has Indian government constituted the Indian board of wildlife ?  
(A) 1951 (B) 1952 (C) 1957 (D) 1983
- Which language is used by blind people ?  
(A) English (B) Mother Tongue (C) Hindi (D) Braille
- Gopuram means .....  
(A) tallest part of the temple. (B) high outer wall of the temple  
(C) viman of the temple (D) entrance of the temple.

• Answer in one or two words.

- In 1882 which canal was constructed in Uttar Pradesh ?

22. In Mizoram what is the total area sown under irrigation ?
23. List down the products obtained from Biogas.
24. How many minimum days of work is promised by MANREGA.

### SECTION-B

❖ **Write the answers to any nine (09) question out of thirteen (13) given below. (25 to 37 Questions) [2 marks each].** **[18]**

25. What is the other name by which Aryan were called ?
26. Whose statue lies in Sarnath ?
27. What is Genetic Heritage ?
28. As a cultural heritage which momentum is depicted on the new Rs. 100 note? Write details of it.
29. Write in short on cathedrals. (Churches of Goa).
30. Write your views regarding cleanliness and Preservation of tourist spots.
31. State the reasons for destruction of wildlife.
32. Why are rivers originated from Himalaya are good for irrigation?
33. Why is mineral storage important ?
34. Write difference between Natural Gas and Bio-Gas.
35. A countries economic stability is achieved through its Industries. How can we say this ?
36. Right to religious freedom helps the minority communities to have faith and evelop religion. – Explain.
37. Which steps are taken by the Indian Government of fight terrorism in Kashmir ?

### SECTION-C

❖ **Write detailed answers of ny (06) out of nine (09) questions given below: (38 to 46 Questions) [3 marks each]** **[18]**

38. Gupta period is known as the golden period of art Explain.
39. Describe Indian Vedic Literature.
40. Why is planning and conservation of resources necessary ?
41. State the limitations of market mechanism system ?
42. What is liberalization ? State its advantages.
43. Black money is one of the reasons for Price Rise. Explain.
44. State the precautions to be taken by consumer while purchasing a product.
45. Expense on Helath is one of the investment made by Human Resource Development. Explain.
46. Give an introduction of constitutional provison for welfare and development of minority.

### SECTION-D

❖ **Answer any for questions from 47 to 53 below and questions no. 54 maps compulsory. [4 marks each]** **[20]**

47. Write a note on : Ancient Astronomy of India.
48. State the meaning of science and Technology and explain its importance.

49. State about the 'Oil seeds crops of India'.
50. 'Paddy' the most important crop of India. Explain.
51. Explain various solutions of poverty alleviation programme.
52. Explain self employment programme.
53. State the measures made in the constitution to protect child labour.

54. **Maps :**

- [1]. Periyar National Park
- [2]. State known as wheat bowl of India.
- [3]. Largest oil refinery
- [4]. Rail Route showing from Delhi to Kolkata with one Junction.

THE KPES ENGLISH SCHOOL

# PAPER SET-1

Sub : Mathematics (Basic)

Total Marks : 80

## SECTION-A

- ❖ Answer according to instruction. (Question no. 1 to 24) (1 mark each) [24]
- Fill in the blanks so as to make each of the following statement true : (Question no. 1 to 6) (1 mark each)
1. Linear equation is \_\_\_\_\_ for cost of 2 pencils and 3 rubbers is Rs. 9 ?  
(A)  $3x - 2y = 9$  (B)  $2x - 3y = 9$  (C)  $2x + 3y = 9$  (D)  $2x - 3y - 9 = 0$
  2. The two different real numbers are \_\_\_\_\_ of quadratic equation  $ax^2 + bx + c = 0$   
(A)  $b^2 - 4ac = 0$  (B)  $b^2 - 4ac > 0$  (C)  $b^2 - 4ac < 0$  (D)  $b^2 - 4ac = 1$
  3. The 30<sup>th</sup> term is \_\_\_\_\_ of A.P. 10, 7, 4, ....  
(A) 97 (B) 77 (C) -77 (D) -87
  4. The distance is \_\_\_\_\_ between point (-5, 12) to origin.  
(A) 13 (B) -13 (C) 160 (D) 12
  5.  $\frac{1 - \tan^2 45^\circ}{1 + \tan^2 45^\circ} =$  \_\_\_\_\_.  
(A)  $\tan 90^\circ$  (B) 1 (C)  $\sin 45^\circ$  (D) 0
  6. In mean  $\bar{X} = a + \frac{\sum f_i d_i}{\sum f_i}; u_i =$  \_\_\_\_\_.  
(A)  $x_i - a$  (B)  $x_i - h$  (C)  $\frac{x_i - a}{h}$  (D)  $\frac{x_i - h}{a}$
- Fill in the blanks so as to make each of the following statement true : (Question no. 7 to 12) (1 mark each)
7. H.C.F.  $(a \times b) \times$  L.C.M.  $(a, b) \cong$  \_\_\_\_\_.  $(a + b, a - b, a \times b)$
  8. Sum of zeroes are \_\_\_\_\_ of quadratic polynomial  $3x^2 - x - 4$ .  $(\frac{-1}{3}, \frac{1}{3}, \frac{1}{4})$
  9. Probability of certain event is always \_\_\_\_\_. (one, three, infinite)
  10. If  $A =$  \_\_\_\_\_ then  $\sin 2A = 2 \sin A$  is right.  $(0^\circ, 45^\circ, 30^\circ)$
  11. There \_\_\_\_\_ are \_\_\_\_\_ tangents to a circle through a point lying outside the circle. (1, 2, infinite)
  12. In mean  $\bar{x} = a + \frac{\sum f_i d_i}{\sum f_i}, d_i =$  \_\_\_\_\_.  $(\frac{x_i - a}{h}, x_i - a, x_i - h)$
- State whether the following statements are True or False : (Question no. 13 to 16) (1 mark each)
13. L.C.M.  $(5, 15) = 15$
  14. The graph of quadratic polynomial  $P(x) = 2x^2 + 7x + 5$  is open parabolic upward.
  15. One solution is  $(4, 3)$  of  $3x - y = 9$  and  $2x + 3y = 19$ .
  16. The probability is 0 to get 81 marks of question paper in your hand.

- Answer the following by a number or a word or a sentence : (Que. no. 17 to 20) (1 mark each)

17. Write equation of Ap to find n-th term.
18. From a point Q, the length of the tangent to a circle is 24 cm and the distance of Q from the center is 25 cm. The radius of circle is \_\_\_\_ .
19. For which number is not more to get probability of any event ?
20. Write equation to find mean with assumed mean.

- Match the following: (Question no. 21 to 24) (1 mark each)

- | Column 'A'                           | Column 'B'       |
|--------------------------------------|------------------|
| 21. volume of 10 rupees coin         | (a). $4\pi r^2$  |
| 22. Total surface area of hemisphere | (b). $\pi r^2 h$ |
|                                      | (c). $3\pi r^2$  |

- | Column 'A'               | Column 'B'                        |
|--------------------------|-----------------------------------|
| 23. Area of minor sector | (a). $2\pi r^2$                   |
| 24. Area of circle       | (b). $\pi r^2$                    |
|                          | (c). $\frac{\pi r^2 \theta}{360}$ |

### SECTION-B

- ❖ Solve the following (Que. No. 25 to 37) (2 marks each) (Write Any Nine) [18]

25. Find the zeroes of the following quadratic polynomials  $6x^2 - 3 - 7x$
26. Find a quadratic polynomial each with the given numbers  $0, \sqrt{5}$  as the sum and product of its zeroes respectively.
27. Find the roots of the following quadratic equations by factorisation  $2x^2 - x + \frac{1}{8} = 0$
28. Find the 11<sup>th</sup> term from the last term (towards the first term) of the AP : 10, 7, 4, .... -62
29. First term  $a = 5$ ,  $d = -3$  then find sum of 10 terms of A.P.
30. Find the coordinates of the mid point of the line segment joining the points A(2, 4) and B(-4, 6).
31. Find the ratio in which the y-axis divides the line segment joining the points (5, -6) and (-1, -4). Also find the point of intersection.
32. Find Value  $\frac{2 \tan 30^\circ}{1 - \tan^2 30^\circ}$
33. If  $\sin A = \frac{3}{4}$  calculate  $\cos A$  and  $\tan A$ .
34. A kite is flying at a height of 60 m above the ground. The string attached to the kite is temporarily tied to a point on the ground. The inclination of the string with the ground is  $60^\circ$ . Find the length of the string, assuming that there is no slack in the string.
35. Radius of cylinder is 5 cm and height 21 cm then find total surface area of cylinder.
36. Height of a cone is 3.5 cm and radius of base is 6 cm then find volume of the cone.
37. For any information  $a = 50$ ,  $\sum f_i u_i = -36$ ,  $\sum f_i = 35$  and  $h = 10$  then find mean of the data.

## SECTION-C

❖ Solve the following (Que. No. 38 to 46) (3 marks each) (Write Any Six) [18]

38. Solve the following pair of linear equation by the substitution method :  $\frac{x}{2} + \frac{2y}{3} = -1$  and

$$x - \frac{y}{3} = 3$$

39. Five years ago, Nuri was thrice as old as Sonu. Ten years later, Nuri will be twice as old as Sonu. How old are Nuri and Sonu ?
40. How many terms of the AP : 9, 17, 25, ... must be taken to give a sum of 636 ?
41. Find the coordinates of the points trisection (i.e., points dividing in three equal parts) of the line segment joining the points A(2, -2) and B(-7, 4).
42. Check whether (5, -2), (6, 4) and (7, -2) are the vertices of an isosceles triangle.
43. Two concentric circles are of radii 10 cm and 6 cm. Find the length of the chord of the larger circle which touches the smaller circle.
44. The tangent at any point of a circle is perpendicular to the radius through the point of contact.
45. The following distribution gives the state - wise teacher-student ratio in higher secondary schools of India. Find the mode.

Number of students per teacher	Number of states / U.T.
15 - 20	3
20 - 25	8
25 - 30	9
30 - 35	10
35 - 40	3
40 - 45	0
45 - 50	0
50 - 55	2

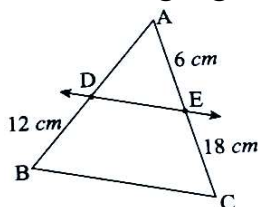
46. Five cards – the ten, jack, queen, king and ace of diamonds, are well-shuffled with their face downwards. One card is then picked up at random.
- (i) What is the probability that the card is the queen ?
- (ii) If the queen is drawn and put aside, what is the probability that the second card picked up is (a) an ace ? (b) a queen ?

## SECTION-D

❖ Solve the following (Que. No. 47 to 54) (4 marks each) (Write Any Five) [20]

47. Write basic theorem of proportionality and prove it.
48.  $DE \parallel BC$  is given in a following figure. Give answers of the following questions from the figure.

- (i). Find AC.  
(ii). Find AD  
(iii). Find AB



(iv). Which triangle is similar to  $\triangle ADE$  ?

49. Find two numbers whose sum is 27 and product is 182.
50. In a rose garden, the flower bed has 23 rose plants in the first row 21 rose plants are in second row and 19 flowers are in third row. 5 rose plants in the last row. How many rows in this flower bed ? also find total rose plants.
51. A survey was conducted by a group of students as a part of their environment awareness programme, in which they collected the following data regarding the number of plants in 20 houses in a locality. Find the mean number of plants per house.

Number of plants	0-2	2-4	4-6	6-8	8-10	10-12	12-14
Number of houses	1	2	1	5	6	2	3

Which method did you use for finding the mean, and why ?

52. The lengths of 40 leaves of a plant are measured correct to the nearest millimetre, and the data obtained is represented in the following table :

Length (in mm)	Number of leaves
118 – 126	3
127 – 135	5
136 – 144	9
145 – 153	12
154 – 162	5
163 – 171	4
172 – 180	2

Find the median length of the leaves.

[Hint : The data needs to be converted to continuous classes for finding the median, since the formula assumes continuous classes. The classes then change to 117.5 – 126.5, 126.5 – 135.5, ....., (171.5 – 180.5)]


53. One card is drawn from a well – shuffled deck of 52 cards. Find the probability of getting,
- (i). a king of red colour (ii). a face card (iii). a red face card (iv). the queen of diamonds.
54. A box contains 90 discs which are numbers from 1 to 90. If one disc is drawn at random from the box, find the probability that is bears (i) a two-digit number (ii) a perfect square number (iii) a number divisible by 5. (iv). Perfect cube number.

# PAPER SET-2

Sub : Mathematics (Basic)

Total Marks : 80

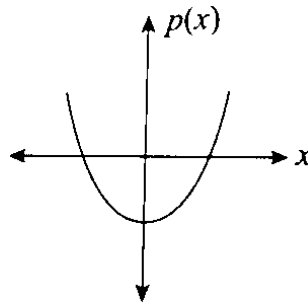
## SECTION-A

- ❖ Answer according to instruction. (Question no. 1 to 24) (1 mark each) [24]
- Fill in the blanks so as to make each of the following statement true : (Question no. 1 to 6) (1 mark each)
- In pair of linear equation in two variables  $\frac{a_1}{a_2} = \frac{b_1}{b_2} \neq \frac{c_1}{c_2}$  then its graphical form is   
(A) inter secting lines (B) parallel lines  
(C) coincident lines (D) none of them
  - \_\_\_ derived a formula of quadratic equations.  
(A) Sridhar Acharya (B) Thales  
(C) Brahmagupta (D) Pythagoras
  - Common difference is \_\_\_ of AP : 4, 9, 14, ....  
(A) 4 (B) 9 (C) 5 (D) 13
  - Distance from point (x, y) to origin is \_\_\_\_\_.  
(A)  $\sqrt{x^2 + y^2}$  (B)  $\sqrt{x^2 - y^2}$  (C)  $x^2 - y^2$  (D)  $x^2 + y^2$
  - $\tan 45^\circ \cdot \cot 45^\circ =$  \_\_\_\_\_.  
(A)  $\frac{1}{\sqrt{3}}$  (B)  $\sqrt{3}$  (C) 1 (D) 0
  - For a data,  $\bar{X} = 35$  and  $M = 35$  then  $Z =$  \_\_\_\_\_.  
(A) 35 (B) 70 (C) 50 (D) 15.5
- Fill in the blanks so as to make each of the following statement true : (Question no. 7 to 12) (1 mark each)
- The sum of two numbers is 20 and difference is 8 then bigger number is \_\_\_ of these two numbers. (14, 20, 6)
  - The graph  $p(x) = x^2 + 4x + 3$  is \_\_\_ (line, upwards parabolas, open downwards parabolas)
  - The probability of getting 5 is thorwn \_\_\_ on balance die.  $\left(\frac{1}{4}, \frac{1}{6}, \frac{5}{6}\right)$
  - $(1 + \tan^2 45^\circ) =$  \_\_\_ (1, 0, 2)
  - The secant of circlce intesects a circlce in \_\_\_ points. (2, 0, 1)
  - Median class is \_\_\_ of the following distribution table.
- |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|
| class | 10-15 | 15-30 | 30-45 | 45-60 | 60-75 |
| freq. | 8     | 7     | 12    | 10    | 2     |
- (60 - 75, 30 - 45, 15 - 30)

- State whether the following statements are True or False : (Question no. 13 to 16) (1 mark each)

13. H.S.F.  $(7, 14) = 7$ .

14. The graph of  $y = P(x)$  is represented in a following figure, In this case number of zeroes of  $P(x)$  is 2.



15. If  $\frac{a_1}{a_2} \neq \frac{b_1}{b_2}$  then in pair of linear equations in two variables have infinite many solution.

16. The probability of certain event is 1.

- Answer the following by a number or a word or a sentence : (Que. no. 17 to 20) (1 mark each)

17. Write common difference of A.P. 4, 9, 14, 19, ...

18. How many equal tangents get from a point outside of a circle ?

19. What is probability to rise the sun in the East ?

20. Write upper limit of class 55 – 65

- Match the following: (Question no. 21 to 24) (1 mark each)

**Column 'A'**

**Column 'B'**

21. Circumference of circle (a).  $\pi r \theta / 180$

22. Length of minor arc (b).  $\pi r \theta / 360$

(c).  $2\pi r$

**Column 'A'**

**Column 'B'**

23. Total surface area of cylinder (a).  $\pi r^2 h$

24. Volume of cone (b).  $\frac{1}{3} \pi r^2 h$

(c).  $2\pi r(h + r)$

### SECTION-B

- ❖ Solve the following (Que. No. 25 to 37) (2 marks each) (Write Any Nine) [18]

25.  $x^2 - 2x - 8$  Find the zeroes of the following quadratic polynomials.

26. Find a quadratic polynomial each with the given numbers as the sum and product of its zeroes respectively.  $\sqrt{2}, \frac{1}{3}$

27. Find the roots of the following quadratic equations by factorisation :  $2x^2 + x - 6 = 0$

28. Write first four terms of the AP, when the first term  $a = 10$  and the common difference  $d = 10$  are given as follows.

29. Find the sums given below  $34 + 32 + 30 + \dots + 10$

30. Find the distance between the following pairs of points (a, b) and (-a, -b)
31. Find the coordinates of a point A, where AB is the diameter of a circle whose centre is A(2, -3) and B(1, 4).
32. Evaluate :  $2 \tan^2 45^\circ + \cos^2 30^\circ - \sin^2 60^\circ$
33. given  $15 \cot A = 8$ , find  $\sin A$  and  $\sec A$ .
34. A contractor plans to install two slides for the children to play in a park. For the children below the age of 5 years, she prefers to have a slide whose top is at a height of 1.5 m, and is inclined at an angle of  $30^\circ$  to the ground, whereas for elder children, she wants to have a steep slide at a height of 3 m, and inclined at an angle of  $60^\circ$  to the ground. What should be the length of the slide each case ?
35. A toy is in the form of cone mounted on a hemisphere of common base radius 7 cm and slant height of cone is 10 cm. Find the total surface area of the toy.
36. The radius of two spheres are in the ratio 5 : 7. Find the ratio of their volume.
37. For any data  $f_1 = 7, f_0 = 3, f_2 = 6, h = 15$  and  $l = 40$  then find mode.

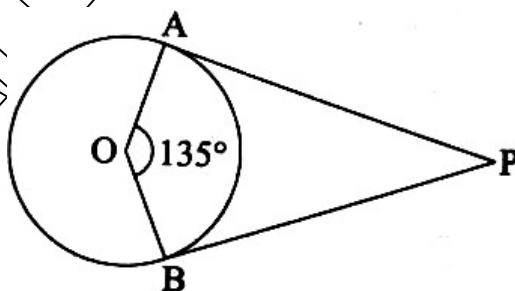
### SECTION-C

❖ Solve the following (Que. No. 38 to 46) (3 marks each) (Write Any Six) [18]

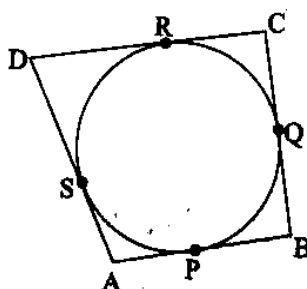
38. Solve the following pair of linear equations by the substitution method.

$$\frac{3x}{2} - \frac{5y}{3} = -2, \frac{x}{3} + \frac{y}{2} = \frac{13}{6}$$

39. A lending library has a fixed charge for the first three days and an additional charge for each day thereafter. Saritha paid Rs. 27 for a book kept for seven days, while Susy paid Rs. 21 for the book she kept for five days. Find the fixed charge and the charge for each extra day.
40. In an AP : Given  $a = 5, d = 3, a_n = 50$ , find  $n$  and  $S_n$ .
41. Find the values of  $x$  for which the distance between the points P(2, -3) and Q(10,  $y$ ) units.
42. PA and PB are tangents of circle with center of O. If  $\angle AOB = 135^\circ$  then find  $\angle OPA$ .



43. A quadrilateral ABCD is drawn to circumscribe a circle (see figure). Prove that  $AB + CD = AD + BC$ .



44. Two concentric circles are of radii 10 cm and 8 cm. Find the length of the chord of the larger circle which touches the smaller circle.
45. The given distribution shows the number of runs scored by some top batsmen of the world in one-day international cricket matches.

Runs scored	Number of batsmen
3000 – 4000	4
4000 – 5000	18
5000 – 6000	9
6000 – 7000	7
7000 – 8000	6
8000 – 9000	3
9000 – 10000	1
10000 – 11000	1

Find the mode of the data.

46. A coin is tossed three times. Then find the following probabilities.
- A : Exact 2 Heads.
  - B : at least 2 Head.
  - C : at most 2 Head.

### SECTION-D

- ❖ **Solve the following (Que. No. 47 to 54) (4 marks each) (Write Any Five) [20]**
47. If a line is drawn parallel to one side of a triangle to intersect the other two sides in distinct points, the other two sides are divided in the same ratio.
48. Write do as directed.
- State SSS similarity Criterion
  - State AAA similarity Criterion
  - State SAS similarity Criterion
  - All squares are congruent following statements is true or false.
49. A cottage industry produces a certain number of pottery articles in a day. It was observed on a particular day that the cost of production of each article (in rupees) was 3 more than twice the number of articles produced on that day. If the total cost of production on that day was Rs. 90, find the number of articles produced and the cost of each article.
50. Find the sum of the first 15 multiples of 8, and What is the 31<sup>st</sup> terms ?
51. To find out the concentration of SO<sub>2</sub> in the air (in parts per million, i.e. ppm) the data was collected for 30 localities in a certain city and presented below :

Concentration of SO <sub>2</sub> (in ppm)	Frequency
0.00 – 0.04	4
0.04 – 0.08	9
0.08 – 0.12	9
0.12 – 0.16	2

0.16 – 0.20	4
0.20 – 24	2

Find the mean concentration of SO<sub>2</sub> in the air.

52. If the median of the distribution given below is 28.5, find the values of x and y.

Class interval	Frequency
0 – 10	5
10 – 20	x
20 – 30	20
30 – 40	15
40 – 50	y
50 – 60	5
Total	60

53. One child has a dice which six surface show the following letter.



- (i). to get A                      (ii). to get D                      (iii). do not get C                      (iv). to get F

54. A box contains 80 discs which are numbered from 1 to 80. If one disc is drawn at random from the box, find the probability that it bears (i) a two-digit number (ii) a perfect square number (iii) a number divisible by 5, (iv) a perfect cube number.

# PAPER SET-1

Sub : Mathematics (Standard)

Total Marks : 80

## SECTION-A

- ❖ Answer according to instruction. (Question no. 1 to 24) (1 mark each) [24]
- Fill in the blanks so as to make each of the following statement true : (Question no. 1 to 6) (1 mark each)
1. For, two positives integers, H.C.F. (a, b) = 13 and L.C.M. (a, b) = 455 then  $a \times b =$  \_\_\_\_  
(A) 5905 (B) 5915 (C) 5815 (D) 5925
  2. for cubical polynomial  $\alpha\beta\gamma =$  \_\_\_\_ .  
(A)  $\frac{-b}{a}$  (B)  $\frac{c}{d}$  (C)  $\frac{-d}{a}$  (D) None of this
  3. how can we write standard form of the pair of linear equation in two variable  $\frac{x}{2} + \frac{y}{3} = 1$   
(A)  $2x + 3y = 1$  (B)  $2x + 3y - 1 = 0$  (C)  $3x + 2y = 6$  (D)  $3x + 2y - 6 = 0$
  4. If discriminant of equation of  $6x^2 - kx + 2 = 0$  is 1 then  $k =$  \_\_\_\_  
(A) 7 (B) -7 (C) +7 (D)  $\pm\sqrt{7}$
  5. If  $1 + 3 + 5 + 7 + \dots + n$  terms then  $S =$  \_\_\_\_ .  
(A)  $n^2$  (B)  $n^3$  (C)  $n + 1$  (D)  $n(n + 1)$
  6. For, the similarity in  $\triangle ABCD$  and  $\triangle PQR$   $\triangle ABC \leftrightarrow \triangle RPQ$  then the corresponding angle of  $\angle B$  is \_\_\_\_ .  
(A)  $\angle P$  (B)  $\angle Q$  (C)  $\angle R$  (D)  $\angle A$
- Fill in the blanks so as to make each of the following statement true : (Question no. 7 to 12) (1 mark each)
7. Perpendicular distance from point (5, 3) to x-axis is \_\_\_\_ . (3, 5, 8)
  8.  $12 \sin \theta = 4 \cos \theta$  then  $\cot \theta =$  \_\_\_\_ .  $(\frac{1}{3}, 3, \frac{1}{4})$
  9. The line intersects circle in two points is called \_\_\_\_ . (secant, tangent, diameter)
  10. Length of arc of circle is 14 cm, radius 7 cm, then area of minor sector of circle is \_\_\_\_  $\text{cm}^2$ . (49, 99, 55)
  11. 1 meter<sup>3</sup> = \_\_\_\_  $\text{cm}^3$  ( $10^3, 10^6, 10^2$ )
  12. For any data  $z = 25, \bar{x} = 25$  then  $M =$  \_\_\_\_ . (25, 45, 65)
- State whether the following statements are True or False : (Question no. 13 to 16) (1 mark each)
13. The probability to come 53 Monday in the year 2020 is  $\frac{3}{7}$ .
  14.  $x + 2y = 5$  and  $7x + 3y = 13$  has one and only one solution  $x = 2$  and  $y = 1$ .
  15. The Standard form of the quadratic equation  $x - \frac{1}{x} = 3(x \neq 0)$  is  $x^2 - 3x - 1 = 0$ .

16. Distance between (2, 3) and (4, 1) is  $2\sqrt{2}$ .

• **Answer the following by a number or a word or a sentence : (Que. no. 17 to 20) (1 mark each)**

17. Which two figures are included in Mason's square ? (Black smith is used to check if wall is traight or not)

18. What is  $l$  indicate in median equation

$$M = l + \frac{\left(\frac{n}{2} - cf\right)}{f} \times h?$$

19. What is H.C.F. of 91 and 143 ?

20. Find the discriminat of equation  $7\sqrt{3}x^2 + 10x - \sqrt{3} = 0$

• **Match the following: (Question no. 21 to 24) (1 mark each)**

**Columan 'A'**

**Columan 'B'**

21.  $\alpha\beta + \beta\gamma + \gamma\alpha$  (a).  $\frac{-b}{a}$

22.  $\alpha\beta\gamma$  (b).  $\frac{c}{a}$

(c).  $\frac{-d}{a}$

**Columan 'A'**

**Columan 'B'**

23.  $\sin\theta$  (a).  $-\cot^2\theta$

24.  $\cos\theta$  (b).  $\sqrt{1 - \cos^2\theta}$

(c).  $\sqrt{1 - \sin^2\theta}$

### SECTION-B

❖ **Solve the following (Que. No. 25 to 37) (2 marks each) (Write Any Nine) [18]**

25. Show the following number of their product of prime number. 12740

26. Find solution of the following linear pair of equation by elimation method :

$$2x + 3y = 7, 3x - 4y = 2$$

27. Find solution of the following equation with factorisation method.

$$100x^2 - 20x + 1 = 0$$

28. Find two consecutive natural numbers if sum of their square is 365.

29. In a farm there are 23 cotten plants in the first row 21 cotton plants in the second row 19 cotton plants in a third row. So on there are, 5 cotton plants in a last row.

30. Given  $15 \cot A = 8$ , find  $\sin A$  and  $\sec A$ .

31. If  $\angle A$  and  $\angle B$  are acute angles such that  $\cos A = \cos B$ , then show that  $\angle A = \angle B$ .

32. The radii of two concentri circles are 41 and 9 cm. The chord of larger circle touches the smaller circle then find the length of the chord.

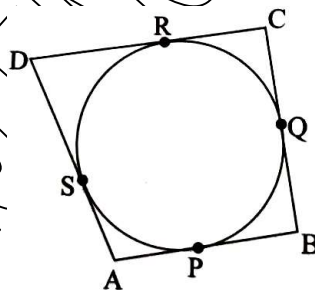
33. If each side of cube is 5 cm then find the total surface area of the cube.

34. For any data  $a = 47.5$ ,  $\Sigma f_i u_i = 29$ ,  $\Sigma f_i = 30$  and  $h = 15$  then find mean.

35. One batsman average runs is 40 in 4 inings. If he out in a zero of the 5 inings. Then what is his average after 5 inings ?
36. Two dice, one blue and one grey, are thrown at the same time. Write down all the possible outcomes. What is the probability that the sum of the two numbers appearing on the top of the dice is (i) 8 ? (ii) 13 ? (iii) less than or equal to 12 ?
37. 12 defective pens are accidentally mixed with 132 good ones. It is not possible to just look at a pen and tell whether or not it is defective. One pen is taken out at random from this lot. Determine the probability that the pen taken out is a good one.

### SECTION-C

- ❖ **Solve the following (Que. No. 38 to 46) (3 marks each) (Write Any Six) [18]**
38. Find the zeroes of the quadratic polynomial  $x^2 + 7x + 10$ , and verify the relationship between the zeroes and the coefficients.
39. Find zeroes of polynomial  $x^2 - 3$  and also check relation of their zeroes and coefficient.
40. How many 3 digits number are divisible by 7 ?
41. Subba Rao started work in 1995 at an annual salary of Rs. 5000 and received an increment of Rs. 200 each year. In which year did his income reach Rs. 7000 ?
42. In what ratio does the point  $(-4, 6)$  divide the line segment joining the points  $A(-6, 10)$  and  $B(3, -8)$
43. Prove that, "The tangent at any point of a circle is perpendicular to the radius through the point of contact."
44. A quadrilateral ABCD is drawn to circumscribe a circle (see Figure). Prove that  $AB + CD = AD + BC$



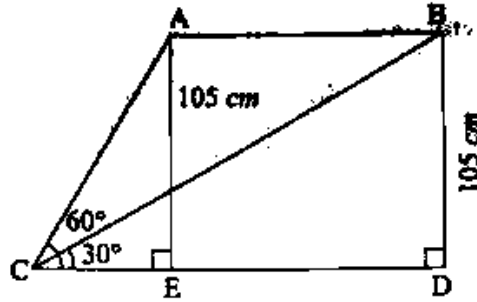
45. A car has two wipers which do not overlap. Each wiper has a blade of length 25 cm sweeping through an angle of  $115^\circ$ . Find the total area cleaned at each sweep of the blades.
46. From a deck of 52 cards one card taken randomly then find the probability (i) colourful card (ii) spade card (iii) not an ace.

### SECTION-D

- ❖ **Solve the following (Que. No. 47 to 54) (4 marks each) (Write Any Five) [20]**
47. The ratio of incomes of two persons is  $9 : 7$  and the ratio of their expenditures is  $4 : 3$ . If each of them manages to save Rs. 2000 per month, find their monthly incomes.
48. The taxi charges in a city consist of a fixed charge together with the charge for the distance covered. For a distance of 10 km, the charge paid is Rs. 105 and for a journey of 15 km, the

charge paid is Rs. 155. What are the fixed charges and the charge per km ? How much does a person have to pay for travelling a distance of 25 km ?

49. E and F are points on the sides PQ and PR respectively of  $\triangle PQR$ . For each of the following cases, state whether  $EF \parallel QR$  :  $PQ = 1.28$  cm,  $PR = 2.56$  cm,  $PE = 0.18$  cm and  $PF = 0.36$  cm.
50. Write Thales theorem and prove.
51. An observer spots a balloon moving with the wind in a horizontal line at a height of 105 m from the ground. The angle of elevation of the balloon after some time reduces from  $60^\circ$  to  $30^\circ$ . Find the distance travelled by the balloon.



52. A tent is in the shape of a cylinder surmounted by a conical top. If the height and diameter of the cylindrical part are 2.1 m and 4 m respectively, and the slant height of the top is 2.8 m, find the area of the canvas used for making the tent. Also, find the cost of the canvas of the tent at the rate of Rs. 500 per  $m^2$ . (Note : that the base of the tent will not be covered with canvas.)
53. A gulab jamun, contains sugar syrup up to about 30% of its volume. Find approximately how much syrup would be found in 45 gulab jamuns, each shaped like a cylinder with two hemispherical ends with length 5 cm and diameter 2.8 cm (see Figure).



54. The following frequency distribution gives the monthly consumption of electricity of 68 consumers of a locality. If the median of the data is 137 then find missing frequency.

Monthly consumption (in units)	65–85	85–105	105–125	125–145	145–165	165–185	185–205
Number of consumers	2	4	3	8	7	4	2

# PAPER SET-2

Sub : Mathematics (Standard)

Total Marks : 80

## SECTION-A

- ❖ Answer according to instruction. (Question no. 1 to 24) (1 mark each) [24]
- Fill in the blanks so as to make each of the following statement true : (Question no. 1 to 6) (1 mark each)
- L.C.M. (a, 18) = 36 and H.C.F (a, 18) = 2 then a = \_\_\_\_  
(A) 2 (B) 3 (C) 4 (D) 1
  - If draw a graph of  $y = ax^2 + bx + c$  is got open upward parabola then which is right conditon ?  
(A)  $a < 0$  (B)  $a = 0$  (C)  $a > 0$  (D)  $a \neq 0$
  - If two variables linear equation are consistent then lines are \_\_\_\_ types.  
(A) intersecting (B) parallel  
(C) always (D) intersecting and collateral.
  - The comprehensive method to find solution of quadratic equation is given by \_\_\_\_ .  
(A) Shreedhar acharya (B) Rene Decarte  
(C) Al-khwarizmi (D) Pnythagoras
  - Then  $n^{\text{th}}$  term of AP is  $(2n + 1)$  then sum of first  $n$  terms is \_\_\_\_ .  
(A)  $n(n + 1)$  (B)  $n(n + 2)$  (C)  $(n - 1)n$  (D)  $(n - 2)n$
  - $\triangle ABC \sim \triangle DEF$ .  $\angle A = 40^\circ$ , then  $\angle E + \angle F =$  \_\_\_\_  
(A)  $40^\circ$  (B)  $80^\circ$  (C)  $140^\circ$  (D)  $180^\circ$
- Fill in the blanks so as to make each of the following statement true : (Question no. 7 to 12) (1 mark each)
- If A(1, 2) and B(3, 2) then midpoint of AB = \_\_\_\_ ((2, 0), (0, 2), (4, 0))
  - $\tan^2\theta - \sec^2\theta =$  \_\_\_\_ ( $0 < \theta < 90$ ). (1, -1, 0)
  - The centre of circle is \_\_\_\_ of the diameter of circle. (midpoint, endpoint, centroid)
  - A circle with radius 5 cm, the radius 5 cm, the radius intersects at right angle then Area of Sector is \_\_\_\_  $\text{cm}^2$ .  $(\frac{5\pi}{4}, \frac{25\pi}{4}, \frac{22\pi}{4})$
  - Total surface area is \_\_\_\_ of the given figure.  $(6\pi r^2, 8\pi r^2, 7\pi r^2)$
- The diagram shows a cylinder with a circular top and bottom. A horizontal line from the center of the top circle to the edge is labeled 'r'. A vertical line on the right side of the cylinder, from the top edge to the bottom edge, is labeled '2r'.
12. Median = 30,  $\bar{x} = 30$ , mean \_\_\_\_ (20, 30, 0)

- **State whether the following statements are True or False : (Question no. 13 to 16) (1 mark each)**

13. The probability is 1 of the event 'The sun rises in the East'.
14. The graph represents y-axis if  $y = 0$ .
15. The discriminant is 104 of the quadratic equation  $2x^2 + 8x - 5 = 0$ .
16. The perpendicular distance of point A(-4, -7) from y-axis is -4.

- **Answer the following by a number or a word or a sentence : (Que. no. 17 to 20) (1 mark each)**

17. The volume ration of the sphere is 27 : 8 then find the volume ration of their diamters.
18. Find the modal class of the following frequency distribution table.

Mark	less than 10	less than 20	less than 40	less than 40	less than 50	less than 60
Freq.	3	12	27	57	75	80

19. Find the ratio of L.C.M. and H.C.F. 5, 15 and 20 ?
20. One solution of  $kx^2 + 3x - 4 = 0$  is  $x = 2$  then find the value of k.

- **Match the following: (Question no. 21 to 24) (1 mark each)**

**Column 'A'**

**Column 'B'**

21.  $ax^2 + bx + c$

(a). Linear Polynomial

22.  $ax^3 + bx^2 + cx + d$

(b). Cubical Polynomial

(c). Quadratic Polynomial

**Column 'A'**

**Column 'B'**

23.  $1 - \operatorname{cosec}^2\theta$

(a).  $-\sin^2\theta$

24.  $\cos^2\theta - 1$

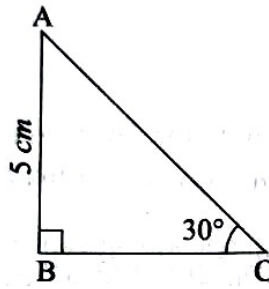
(b).  $-\cot^2\theta$

(c).  $\sqrt{1 - \cos^2\theta}$

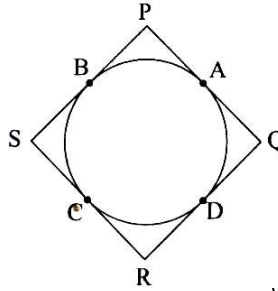
## SECTION-B

- ❖ **Solve the following (Que. No. 25 to 37) (2 marks each) (Write Any Nine) [18]**

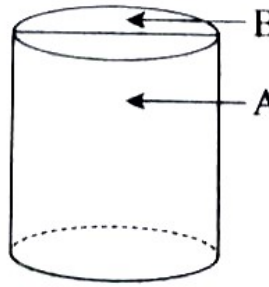
25. Prove that the following are irrational :  $6 + \sqrt{2}$
26. Wich value of k gets infinite many solutions of the following given pair of linear equatin ?  
 $3x - (k+1)y = 20; (k+2)x - 10y = 40$
27. Find the roots of the following quadratic eqations by factorisation :  $\sqrt{2}x^2 + 7x + 5\sqrt{2} = 0$
28.  $x^2 + 5x - \frac{5}{4} = 0$  if one root is  $\frac{1}{2}$  then find k.
29. Find the sum of the odd numbers between 0 and 50.
30. If  $\tan(A+B) = \sqrt{3}$  and  $\tan(A-B) = \frac{1}{\sqrt{3}}$ ;  $0^\circ < A+B \leq 90^\circ$ ;  $A > B$ , find A and B.
31. In  $\Delta ABC$  right-angled at B,  $ab = 5$  cm and  $\angle ABC = 30^\circ$  (see figure) Determine the lengths of the sides BC and AC.



32. A quadrilateral PQRS is drawn to circumscribe a circle of the given figure then prove that  $PQ + RS = QR + PS$ .



33. As shown in figure curved surface area of cylinder is (A) sq. unit; curved surface area of hemisphere is (B) sq. unit then what is total surface area of the solid ?

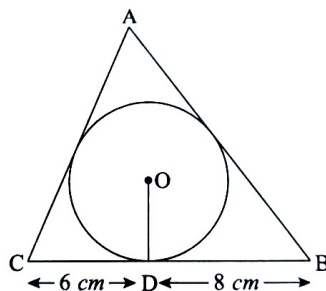


34. For any data  $l = 239.5$ ,  $n = 50$ ,  $cf = 13$ ,  $f = 12$  and  $h = 20$  then find median.  
 35. For any data median  $+x = 22$  and median  $-x = 2$  for any data.  
 36. Salma and Mona are two friends. Find the probability of the year 2019. (i) birthdays are on different days, (ii) birthdays come on a same day.  
 37. A box hasten Chits numbered 1 to 10 one chit is drawn at random from the box find the probability that number on the chit is composite number.

### SECTION-C

- ❖ Solve the following (Que. No. 38 to 46) (3 marks each) (Write Any Six) [18]
38. Find the zeroes of polynomial  $x^2 - 7$  and also check the relation between their zeroes and coefficients.
39. If zeroes of polynomial  $P(x) = x^2 - 4x + 3$  are  $\alpha$  and  $\beta$  then,  $\alpha^4\beta^3 + \alpha^3\beta^4 = \underline{\hspace{2cm}}$
40. The first term of an AP is 5, the last term is 45 and the sum is 400. Find the number of terms and the common difference.
41. Ramkali save Rs. 5 in the first week of a year and then increased her weekly saving by Rs. 1.75. If in the  $n$ th week, her weekly saving become Rs. 20.75, find  $n$ .
42. If points  $A(6, 1)$ ,  $B(8, 2)$ ,  $C(9, 4)$  and  $D(P, 3)$  are vertices of the parallelogram in the order the find value of 'P'
43. Prove that the parallelogram circumscribing a circle is a rhombus.

44. A triangle ABC is drawn to circumscribe a circle of radius 4 cm such that the segments BD and DC into which BC is divided by the point of contact D are of lengths 8 cm and 6 cm respectively (see Figure). Find the sides AB and AC.



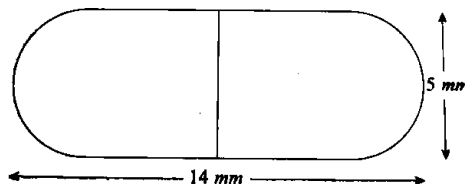
45. An umbrella has 8 ribs which are equally spaced (see Figure). Assuming umbrella to be a flat circle of radius 45 cm, find the area between the two consecutive ribs of the umbrella.



46. A box contains 90 discs which are numbered from 1 to 90. If one disc is drawn at random from the box, find the probability that it bears (i) a two-digit number (ii) a perfect square number (iii) a number divisible by 5.

### SECTION-D

- ❖ Solve the following (Que. No. 47 to 54) (4 marks each) (Write Any Five) [20]
47. The sum of a two-digit number and the number obtained by reversing the digits is 66. If the digits of the number differ by 2, find the number. How many such numbers are there ?
48. Solve :  $2x + 3y = 1$  and  $2x - 4y = -24$  Also find 'm' such that  $y = mx + 3$ .
49. Diagonals AC and BD of a trapezium ABCD with  $AB \parallel DC$  intersect each other at the point O. Using a similarity criterion for two triangles, show that  $\frac{OA}{OC} = \frac{OB}{OD}$ .
50. Write basic theorem of proportionality and prove.
51. A shadow of a tower standing on a level ground is found to be 40 m longer when the Sun's altitude is  $30^\circ$  than when it is  $60^\circ$ . Find the height of the tower.
52. A toy is in the form of a cone of radius 3.5 cm mounted on a hemisphere of same radius. The total height of the toy is 15.5 cm. Find the total surface area of the toy.
53. A medicine capsule is in the shape of a cylinder with two hemispheres stuck to each of its ends (see figure). The length of the entire capsule is 14 mm and the diameter of the capsule is 5 mm. Find its surface area.



54. Mean of given frequency distribution is 43.75 then find missing frequency  $f$ .

Class	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Frequency	8	4	20	45	64	32	$f$	8	2	2

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# THE KPES SCIENCE ACADEMY

Higher Secondary Science (Self Finance)

TEAM SCIENCE GURU

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Arts and competitive  
exam guide by



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Mr. Kirit Sir Mandaliya  
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Science  
Guide by



Mr. Bhaveshbhai Chhotala  
(Team Science Guru)

Diploma Engg.  
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(Krishna Eng. Academy)

All the above academicians of Bhavnagar are going to give detailed information about all the streams in the seminar. Don't miss this opportunity and register for the seminar.

Registration  
Process

1. Registration can be done in-person at the institute from 8:00 am to 5:00 pm
2. Registration can be done by calling on 9512232020 or by whatsapp message on 9724862222.

Date : 19/03/2026, Thursday

Time : 5.00pm

Venue : THE KPES ENGLISH SCHOOL, Near Leela circle, Kalvibid, Bhavnagar

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# THE KPES SCIENCE ACADEMY

Higher Secondary Science (Self Finance)

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Entrance examination for the Academic year 2026-28

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Exam Time : 9.00 am

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Subject	Maths	Science	Total
Marks	25	25	50

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To know how much scholarship is available to students  
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# THE KPES SCIENCE ACADEMY

Higher Secondary Science (Self Finance)

TEAM SCIENCE GURU

## ADMISSION OPEN

For Academic Year 2026 - 28



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