

**DNYAN BHARTI SOCIETY'S**

SAU. SITABAI RAMKRUSHNA KARANDIKAR SENIOR COLLEGE OF COMMERCE

LATE MEHERNOSH BOMAN BURJOR IRANI COLLEGE OF ARTS

BSES JUNIOR COLLEGE OF SCIENCE

VADKUN, DAHANU ROAD (W.RLY), DIST THANE, MAHARASHTRA - 401602.

Date: 21/10/2013

**FIRST TERM END EXAM - OCTOBER 2013**

Max. Marks: 50

Class: F.Y.J.C. (COM/SCI)

Subject: English

Time: 02 hours

**Q. 1-A) Read the following extract and answer the questions given below (11)**

When I was 14 and very confused about my place in the world, I decided it was time to make a Big Decision. I came home from school one day to announce that I was going to enroll in vocational agriculture courses. I was not going to college. I was going to raise horses for a living.

Dad looked startled then baffled. "That's a rather rash decision," he said. "I hope you've given it careful consideration."

I replied that I had and that I knew exactly what I wanted.

"You're talking about a large commitment," he said. "If you spend four years in vocational courses, you won't have a choice about college. What if you change your mind?"

Mother listened to our discussion with concern. Neither of my parents had been to college, but both hoped I would go. To make it possible, Dad was working at a regular job until 3 p.m., then another four or five hours a day at the little farm we owned on the edge of the town.

"How much have you saved towards this project?" asked Dad.

"Nearly \$ 200," I said proudly.

"Tell you what," he said. "I know a ranch up North where they raise horses. Let's drive up there next week. You buy a mare, and we'll put her out at the farm. You care for her, have her bred, sell the colt. Then, after a year or two, if you feel the way you do now, fine. Meanwhile, stay with your regular courses."

The horse-buying trip sounded good, and the offer, as usual with Dad, was fair. I agreed.

When the day came, we left early, putting the dry, flat plains behind us before the sun rose. By mid-morning, we were in the high mountains of northern New Mexico. We arrived at Miguel Hernandez's ranch towards evening. Dad had known Mr. Hernandez for years, and we were welcomed with great hospitality.

1. Why had the writer saved \$200? (01)
2. What did the writer's father advise him before the horse-buying episode? (02)
3. Why was the writer's father against his Big Decision? (02)
4. Do you think the writer's father gave him good advice? Why? (02)
5. Do as directed:
  - (a) I replied that I had and that I knew exactly what I wanted. (01)  
(Rewrite in Direct Speech)
  - (b) Mother listened to our discussion with concern. (01)  
(Rewrite using the verb form of the underlined word)
  - (c) We were welcomed with great hospitality. (01)  
(Change the voice)
6. Find a word from the extract which means 'baffled'. (01)

**Q. 1-B) Grammar****(04)**

- 1) It is \_\_\_\_\_ client who pays \_\_\_\_\_ lawyer's fees.  
(Use appropriate articles)
- 2) I will meet you \_\_\_\_\_ examination \_\_\_\_\_ the canteen.  
(Use proper prepositions)
- 3) Mrs. Shah said I will check your projects tomorrow.  
(Punctuate the given sentence)
- 4) The teacher said, "You must work hard if you want to pass."  
(Change to indirect speech)

**Q. 2) Read the following passage and answer the questions given below****(11)**

One of my teachers once asked my class what our favourite memory was. I vaguely remember that we were studying self-esteem, and as a discussion prompt, my teacher asked for the moment in which "you felt the best, you felt that you had the world in the palm of your hand." Some described prestigious awards; others described winning a tournament. My answer, however, invited giggles and hesitant smiles. Why? Because I felt the best when I first learned how to ride my bike - at thirteen. I didn't mind my classmate's stares and snickering, because I knew there was more to the story.

My sister and I shared a typical sisterly relationship: we couldn't stand each other. Or, to be honest, she couldn't stand me. I hero-worshipped her. Her taste was the epitome of glamour, her personality the definition of cool. My clothes were mysteriously inclined to look like hers, and even my words tended to mimic those I heard from home. Many times, I even wanted to literally follow my sister, whimpering every time I was barred from attending movies with her. Needless to say, I was a brat and an annoyance to her. Any sort of conversation we had usually degraded to fighting, and try as I might, my sister had an extra six years worth of insulting vocabulary (which meant she usually won). After a while, I stopped trying to impress her and learned to be totally indifferent; perhaps the silent treatment would get more approval. I was wrong. We soon fell into a sad pattern - I avoided her, she ignored me, and deep inside, it hurt. So that's how it was between us. Indifferent or hostile, she was only a sister in name. I truly believed that we would forever be apart, two housemates without conversation, two strangers without warmth. And nothing more.

1. The teacher used the method of \_\_\_\_\_ (explaining / illustrating / discussion). (01)
2. What did the narrator truly believe? Why? (02)
3. Why did Esther stop trying to impress her sister? Did it help? (02)
4. How you ever felt that you had the world in the palm of your hand? Explain why? (02)
5. Do as directed:
  - (a) My answer, however, invited giggles and hesitant smiles. (01)  
(Rewrite using "Not only \_\_\_\_\_ but also")
  - (b) My sister and I shared a typical sisterly relationship. (01)  
(Identify the tense used)
  - (c) She was only a sister in name. (01)  
(Rewrite as Negative Sentence)
6. Give the Noun form of: (01)
  - (a) felt
  - (b) ignored

**Q. 3) Read the following extract from the poem and answer the questions given below**

**(04)**

And off you go, and you do not know,  
When that holiday will be,  
When the room won't be dumb and silent so,  
And your daddy will be free.

Before in the half-open door you appear,  
Your complaint flies on ahead;  
"But daddy, you're only thinking there,  
And yet you were working, you said!"

It's as if I lied to you, in disgrace,  
In the most important thing,  
For shame at your daddy flies over your face,  
Like the shadow of a wing.

1. Why does the boy think that daddy is not working? (01)
2. Do you think that 'daddy' gets a holiday? Why? (01)
3. Name and explain the figure of speech "When the room won't be dumb and silent so". (01)
4. Pick out the line which shows that the child has lost confidence in his father? (01)

**Q. 4) Read the following extract from Rapid Reading and answer the given question**

**(04)**

When a dozen persons question openly or slyly a man's sanity, he begins to entertain serious doubts himself. This is what happened to ex-gateman Govind Singh and you could not blame the public either. What could you do with a man who carried out in his hand a registered postal envelope and asked, "Please tell me what there is inside"? The obvious answer was: "Open it and see. . . ." He seemed horrified at this suggestion. "Oh, no, no, can't do it," he declared and moved off to another friend and acquaintance. Everywhere the suggestion was the same, till he thought everyone has turned mad. And then somebody said, "If you don't like to open it and yet want to know what is inside you must take it to the X-ray institute." This was suggested by an ex-compounder who lived in the next street.

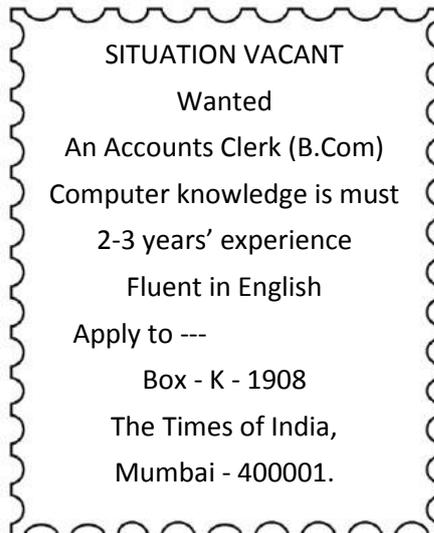
"What is it?" asked Govind Singh. It was explained to him. "Where is it?" He was directed to City X-ray Institute.

**Govind Singh wants to know what is inside the registered postal envelope without opening it. An ex-compounder suggested that he must take it to the X-ray institute and directed him to the City X-ray Institute. Extend the extract by adding a short paragraph of your own.**

**Q. 5-A) Letter Writing**

**(04)**

i. Read the following advertisement and prepare a letter of application



OR

ii. Write a letter to the Zonal Secretary, M.S.E.B., complaining about frequent instances of power failure during examinations. Request him to restore normalcy in power supply.

**Q. 5-B) Prepare a short tourist leaflet for a place of historical importance in Maharashtra. Indicate the following points in the leaflet.**

**(04)**

- 1) How to go there?
- 2) Where to stay?
- 3) What to see?
- 4) Anything special about the place.

**Q. 5-C)** Imagine that you are interviewing a famous cricketer for a T.V. channel. You want to know about his achievements and his message for youth. Prepare a dialogue between you and him in a question-answer form.

**(04)**

**Q. 5-D) Read the following passage and prepare a tree diagram**

**(04)**

Mr. and Mrs. Pinto have three children, a son Mark and two daughters Sunita and Monica. Two of their children Monika and Mark are married. Mark is an I.T. engineer who is married to Andy, a primary school teacher. They have a son Mario, who is studying in the 8th std. Sunita is the second child of Mr. & Mrs. Pinto. She is a nurse and works at St. Luke's Hospital in Dubai. She has not yet married.

Their youngest daughter Monica is a C.A. and has married Glenn who works in a bank. They have twins Dolly and Molly who are in second standard.

----- ALL THE BEST -----

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VADKUN, DAHANU ROAD (W.RLY), DIST THANE, MAHARASHTRA - 401602.

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Date: 06/10/2014

**Terminal Examination - OCTOBER 2014**

Max. Marks: 50

Class: F.Y.J.C. COM/SCI

Subject: English

Time: 2 hours

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**Q. 1-A) Read the following passage and answer the questions given below: (11)**

I still remember the day I learned to ride a bike. I had received the bike that Christmas, which was great, until I realized I had no idea how to ride it. My mom had long since abandoned any attempt to teach me; I had proved to be a panicky, frustrating student. I took it upon myself to learn, a little bit each day, but to no avail; I couldn't ride my bike, and on that fateful day, it was no different. I was coming to the end of my daily one-hour torture, and I was so frustrated that I threw my bike aside and began to cry. I guess that was what caused my sister to come outside. At first I was skeptical and tense, as I thought she would begin to tease me or at least burst out laughing. She did neither. I hunched my shoulders forward and turned my face away, but she gently picked my bike up and motioned me over. That was the beginning. She fearlessly held my hand while the tears dried on my cheeks; she steadily held my bike when my feet faltered. She never once let me fall. And for three hours - three wonderful, blissful hours - we learned to ride my bike. No shouting. No fighting. No arguing.

1. What do you come to realize about Esther's sister from this extract? (01)
2. When did Esther get the bike? How did she try to learn to ride it? (02)
3. How did Esther react, when her sister came forward to teach her to ride the bike? (02)
4. What was your experience on learning to ride a bike? (02)
5. Do as directed:
  - (a) I still remember the day I learned to ride a bike. (01)  
(Rewrite using the opposite of the underlined word. Do not change the meaning)
  - (b) I threw my bike aside and began to cry. (01)  
(Rewrite as a Simple Sentence)
  - (c) We learned to ride my bike. (01)  
(Rewrite using the Future Continuous Tense)
  - (a) The word 'faltered' means \_\_\_\_\_. (01)

**Q. 1-B) Grammar (04)**

- 1) Sunil was born \_\_\_\_\_ Delhi \_\_\_\_\_ 3rd January, 1988. (01)  
(Use suitable Prepositions)
- 2) \_\_\_\_\_ mobile phone is \_\_\_\_\_ long range portable electronic device. (01)  
(Use proper Articles)
- 3) "You must work hard if you want to pass", said the teacher. "Will you promise Rahul, to study everyday?" (Change to indirect speech) (02)

**Q. 2) Read the following passage and answer the questions given below: (11)**

We walked in silence for a moment. "You know, Dad," I said, finally. "I do love the farm, and taking care of Sadie, and all that. But, well, it seems there are a lot of other interesting things to do, too."

"Sounds to me as if you've been 'considering'," Dad said.

In the end, of course I did go to college. Dad drove over one autumn day of my first year, and picked me up at the dormitory. We had no destination. We just drove slowly through the mountains, feeling good about being together. Over dinner, I told him about my courses and my plans.

When he dropped me back at the dormitory that night, he offered his hand. "Well, son," he said, tightening his grip, "I guess our horse-buying days are about over. But we bought some pretty good ones, wouldn't you say?"

I nodded, unable for a moment to speak. I looked beyond him to where the library stood alone, lighted like a cathedral. "Dad", I said. "I found out what the Red Indians used that room for."

"Oh?"

"It was a place where men taught boys about life . . . kind of like horse-buying time."

He tried to smile, but the muscles of his face hesitated. "Write to your mother," he said sharply. "She misses you."

When he was gone, I sat outside for a long time. When the lights went out at the library, the stars seemed to shine brighter still, and I stayed to watch them.

1. How did the writer find out about the Red Indians? (01)
2. What did the writer's father remind him about before he left? (02)
3. Why did the father feel that his son "had been considering"? (02)
4. Do you think there should be a direct link between theory and practice in vocational education? Why? (02)
5. Do as directed:
  - (a) I do love the farm, and taking care of Sadie, and all that.  
(Identify the tense) (01)
  - (b) I sat outside for a long time. (Add a question tag) (01)
  - (c) We bought some pretty good ones.  
(Rewrite using the Future Continuous Tense) (01)
6. Give the Adverb forms of -
  - (a) silence (b) bright (01)

**Q. 3-A) Read the following poem and answer the questions given below. (04)**

Old failures will not halt, old triumphs aid,  
To-day's the thing, to-morrow soon will be;  
Get in the fight and face it unafraid,  
And leave the past to ancient history;

What has been, has been; yesterday is dead  
And by it you are neither blessed nor banned;  
Take courage, man, be brave and drive ahead,  
Start where you stand.

1. What does the following line suggest - "What has been, has been; yesterday is dead."? (01)
2. It is said that "No defeat is final and there's no end to make efforts". Do you agree with this? Why? (01)
3. Write down the rhyme scheme used in this poem.
4. Pick out expressions used by the poet to emphasize hard work and perseverance. (01)

**Q. 3-B) Read the following poem and answer the questions given below. (04)**

When you are at home I have no peace -  
I can't find a quiet nook;  
And time and again you come to me:  
"Daddy, read me a book!"

A timid question, a hesitant step,  
For often you've heard me quirk;  
"Another time, then, my little chap.  
You see I'm trying to work!"

1. Why does daddy have no peace, when his son is at home? (01)
2. As a child, what did you want your father to do for you? (01)
3. Identify an example of 'Transferred Epithet' from the given poem. (01)
4. How has the poet described that the boy is nervous? (01)

**Q. 4) Read the following passage and answer the questions. (04)**

When a dozen persons question openly or slyly a man's sanity, he begins to entertain serious doubts himself. This is what happened to ex-gateman Govind Singh and you could not blame the public either. What could you do with a man who carried out in his hand a registered postal envelope and asked, "Please tell me what there is inside"? The obvious answer was: "Open it and see. . . ." He seemed horrified at this suggestion. "Oh, no, no, can't do it," he declared and moved off to another friend and acquaintance. Everywhere the suggestion was the same, till he thought everyone has turned mad. And then somebody said, "If you don't like to open it and yet want to know what is inside you must take it to the X-ray institute." This was suggested by an ex-compounder who lived in the next street.

"What is it?" asked Govind Singh. It was explained to him. "Where is it?" He was directed to City X-ray Institute.

**Govind Singh wants to know what is inside the registered postal envelope without opening it. An ex-compounder suggested that he must take it to the X-ray institute and directed him to the City X-ray Institute. Extend the extract by adding a short paragraph of your own.**

**Q. 5-A) Letter Writing (04)**

- i. Read the given advertisement and prepare a letter of application:



**OR**

- ii. Write a letter to your father expressing how you are touched by his feelings and the precious advice that he has given to you.

**Q. 5-B) Prepare a short tourist leaflet for any hill station. Use the following points: (04)**

- 1) How to reach there
- 2) Where to stay
- 3) Places worth visiting
- 4) Specialty of the place

**Q. 5-C) Read the following passage and draw a tree diagram of Mr. Pinto's family (04)**

Mr. and Mrs. Pinto have three children, a son Mark and two daughters Sunita and Monica. Two of their children Monika and Mark are married. Mark is an I.T. engineer who is married to Andy, a primary school teacher. They have a son Mario, who is studying in the 8th std. Sunita is the second child of Mr. & Mrs. Pinto. She is a nurse and works at St. Luke's Hospital in Dubai. She has not yet married.

Their youngest daughter Monica is a C.A. and has married Glenn who works in a bank. They have twins Dolly and Molly who are in second standard.

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VADKUN, DAHANU ROAD (W.RLY), DIST. PALGHAR, MAHARASHTRA - 401602.

Date: 17/10/2015

**TERM END EXAM - OCTOBER 2015**

Max. Marks: 50

Class: F.Y.J.C. COM/SCI

Subject: English

Time: 02 hours

**Q. 1-A) Read the following extract and answer the questions given below : (11)**

I still remember the day I learned to ride a bike. I had received the bike that Christmas, which was great, until I realized I had no idea how to ride it. My mom had long since abandoned any attempt to teach me; I had proved to be a panicky, frustrating student. I took it upon myself to learn, a little bit each day, but to no avail; I couldn't ride my bike, and on that fateful day, it was no different. I was coming to the end of my daily one-hour torture, and I was so frustrated that I threw my bike aside and began to cry. I guess that was what caused my sister to come outside. At first I was skeptical and tense, as I thought she would begin to tease me or at least burst out laughing. She did neither. I hunched my shoulders forward and turned my face away, but she gently picked my bike up and motioned me over. That was the beginning. She fearlessly held my hand while the tears dried on my cheeks; she steadily held my bike when my feet faltered. She never once let me fall. And for three hours - three wonderful, blissful hours - we learned to ride my bike. No shouting. No fighting. No arguing.

1. What do you come to realize about Esther's sister from this extract? (01)
2. When did Esther get the bike? How did she try to learn to ride it? (02)
3. How did Esther react, when her sister came forward to teach her to ride the bike? (02)
4. What was your experience on learning to ride a bike? (02)
5. Do as directed:
  - (a) I still remember the day I learned to ride a bike. (01)  
(Rewrite using the opposite of the underlined word. Do not change the meaning)
  - (b) I threw my bike aside and began to cry. (01)  
(Rewrite as a Simple Sentence)
  - (c) We learned to ride my bike. (01)  
(Rewrite using the Future Continuous Tense)
6. The word 'faltered' means \_\_\_\_\_. (01)

**Q. 1-B) Do as Directed: (04)**

- 1) It was \_\_\_\_\_ last time that \_\_\_\_\_ mother cried. (01)  
(Use suitable articles)
- 2) I will meet you \_\_\_\_\_ the examination \_\_\_\_\_ the canteen. (01)  
(Use proper prepositions)
- 3) Father asked Mohan, "How much did you pay for this pen?". Mohan replied, "I paid twenty rupees. (02)  
(Change into indirect narration)

**Q. 2-A) Read the following passage and answer the questions given below: (11)**

In Pune, the main focus of the Door Step School is educating children on construction sites. "We conducted a survey and found that lots of young children move into the city with or without families to work on construction sites. Earning the daily bread is a challenge and education thus remains a distant dream. We try and reach out to such children and as a result, today, we are operating on over 100 construction sites in the city. However, there are several challenges. The

opening as well as the closure of the sites is not in our hands. When the site is completed, the labour moves out and so does the child. This results in a high dropout rate. Over the years, we have put in several measures to track the children moving due to residence change. One of the ways is by training children to call us from the new location and give us that address. We have received quite a few calls and this is very encouraging”, smiles Rajani.

The Door Step School also provides facility for transport. Making provisions for school transport for children is an essential service, particularly in Pune which is known for its heavy and undisciplined traffic! Transport also becomes a necessity when the number of children at a particular location is rather small and one can save resources by transporting them to a class running nearby.

1. What does the Door Step School in Pune focus on? (01)
2. What service is rendered by the Door Step School for children who stay far away? (02)
3. What happens to the children in Door Step School when the construction work is over? (02)
4. How did you travel to school as a young child? (02)
5. Do as directed:
  - (a) We conducted a survey. (01)  
(Change to Passive Voice)
  - (b) We try and reach out to such children. (01)  
(Rewrite as a Simple sentence)
  - (c) This is very encouraging. (01)  
(Rewrite as an Explanatory sentence)
6. Give the antonyms of: (a) smiles (b) heavy (01)

**Q. 2-B) Read the following passage and prepare a tree diagram (04)**

Mr. and Mrs. Pinto have three children, a son Mark and two daughters Sunita and Monica. Two of their children Monika and Mark are married. Mark is an I.T. engineer who is married to Andy, a primary school teacher. They have a son Mario, who is studying in the 8th std.

Sunita is the second child of Mr. & Mrs. Pinto. She is a nurse and works at St. Luke’s Hospital in Dubai. She has not yet married.

Their youngest daughter Monica is a C.A. and has married Glenn who works in a bank. They have twins Dolly and Molly who are in second standard.

**Q. 3-A) Read the following poem and answer the questions given below. (04)**

And off you go, and you do not know,  
When that holiday will be,  
When the room won’t be dumb and silent so,  
And your daddy will be free.

Before in the half-open door you appear,  
Your complaint flies on ahead;  
“But daddy, you’re only thinking there,  
And yet you were working, you said!”

It’s as if I lied to you, in disgrace,  
In the most important thing,  
For shame at your daddy flies over your face,  
Like the shadow of a wing.

1. Why does the boy think that daddy is not working? (01)
2. Do you think that 'daddy' gets a holiday? Why? (01)
3. Name and explain the figure of speech "When the room won't be dumb and silent so". (01)
4. Pick out the line which shows that the child has lost confidence in his father? (01)

**Q. 3-B) Read the following extract and answer the questions given below: (04)**

Constantly dressed in modern dresses,  
 taking yesterday as a very old hag,  
 I am destined to pull on  
 Among the latest waves of style.

It has been long, long since  
 I have  
 left my friendship in the village  
 and come here.

Ages past  
 I feel this day  
 on the smile of my lips  
 the lipstick of sham  
 painted bright.

- 1) Who is the speaker in this poem? Give evidence from the poem for your answer. (01)
- 2) Do you think the life she is now living is the life of pretence? How do you know it? (01)
- 3) Pick out an example of Simile and explain it. (01)
- 4) Identify lines from the poem that refer to city life. (01)

**Q. 4) Read the following extract. (04)**

Walking back home he pondered over it. "Why are they behaving like this, as if I were a madman?" Then this word came to his mind, he stopped abruptly in the middle of the road and cried. "Oh! That's it, is that it? - Mad!" He shook his head gleefully as if the full truth had just dawned upon him. He now understood the looks that people threw at him. "Oh! Oh!" he cried aloud. He laughed. He felt a curious relief at this realization. "I have been mad and didn't know it..." He cast his mind back. Every little action of his for the last so many days seemed mad; particularly the doll-making. "What sane man should make clay dolls after twenty-five years of respectable service in an office?" He felt a tremendous freedom of limbs, and didn't feel it possible to walk at an ordinary pace. He wanted to fly. He flung his arms up and down and ran on a whoop. He ran through the Market Road. When people stood about and watched he cried, "Hey, don't laugh at a madman, for who knows, you will also be mad when you come to make clay dolls," and charged into their midst with a war cry. When he saw children coming out of a school, he felt it would be nice to amuse their young hearts by behaving like a tiger. So he fell on his hands and knees and crawled up to them with a growl.

He went home in a terrifying condition. His wife, who was grinding Chilli in the backyard, looked up and asked 'What is this?' His hair was covered with street dust; his body was splashed with mud. He could not answer because he choked with mirth as he said, "Fancy what has happened!"

**Imagine that you are Govind Singh and narrate the given extract.**

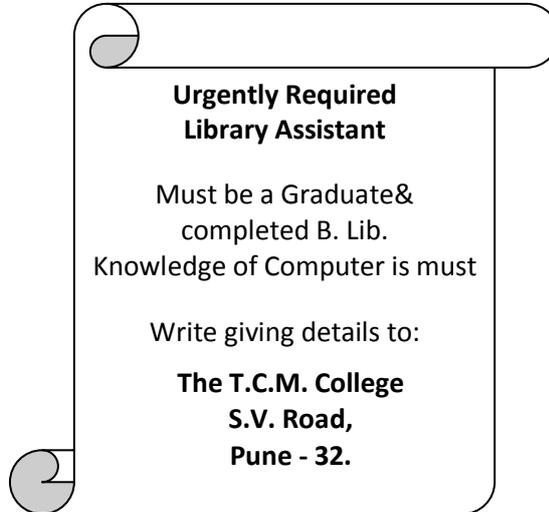
**Q. 5-A) Prepare a short tourist leaflet of any place of tourist attraction, you have recently visited. Make use of the following points: (04)**

- 1) How to go there?
- 2) Where to stay?
- 3) What to see?
- 4) Best time to visit?
- 5) Other important details.

**Q. 5-B) i) You are living in a hostel. Write a letter to your mother, telling her about your hostel life. (04)**

**OR**

ii) Write a letter of application for the post of Library Assistant, in reply to the advertisement given below:



----- ALL THE BEST -----

Date: 25/10/2013

**FIRST TERM END EXAM - OCTOBER 2013**

Max. Marks: 50

Class: F.Y.J.C. (SCI)

Subject: Biology

Time: 2.5 hours

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**PAPER - I (Marks - 25)**

**Q. 1) Select and write appropriate answer from the alternatives (07)**

- 1) The algal component of Lichen is called \_\_\_\_\_.  
a) phycobiont  
b) photosynthesis  
c) mycobiont  
d) symbiont
  
- 2) \_\_\_\_\_ belongs to the kingdom plantae.  
(a) Yeast  
(b) Spirogyra  
(c) Bacteria  
(d) Usnea
  
- 3) The first vascular plants are \_\_\_\_\_.  
(a) Algae  
(b) Bryophyta  
(c) Pteridophyta  
(d) Angiosperms
  
- 4) Secondary growth is absent in \_\_\_\_\_.  
(a) monocotyledons  
(b) dicotyledons  
(c) all angiosperms  
(d) gymnosperms
  
- 5) A nucleotide contains \_\_\_\_\_.  
(a) sugar + phosphate  
(b) N-base + phosphate  
(c) sugar + nitrogenous base  
(d) sugar + N-base + phosphate
  
- 6) Most common constituents of organic compounds found in organisms are \_\_\_\_\_.  
(a) C, H, O, P  
(b) C, H, O  
(c) C, H, N, P  
(d) C, H, O, N, P
  
- 7) A spongy tissue called velamen is present in \_\_\_\_\_.  
(a) breathing roots  
(b) parasitic roots  
(c) tuberous roots  
(d) epiphytic roots

**Q. 2-A) Answer the question in one sentence - Any Four (04)**

- 1) What are tendrils?
- 2) Why Stilt roots are present in monocots like maize and jowar?
- 3) Why plant fats are liquid at room temperature while animal fats are solid?
- 4) Define taxonomy?
- 5) Unicellular Prokaryotic organisms are included in which kingdom?
- 6) Give any two examples of Bryophytes.

**Q. 2-B) Draw a neat labeled diagram of Epiphytic root. (02)**

**Q. 2-C) Answer the questions - Any One**

**(02)**

- 1) Distinguish between Dicotyledons and Monocotyledons.
- 2) Give general characteristics of kingdom Fungi.
- 3) Explain the role of lipids in plants and animals.
- 4) Describe the two different types of fatty acids.

**Q. 3) Answer the questions - Any One**

**(03)**

- 1) Explain the different types of functional proteins.
- 2) Describe the modification of leaf.
- 3) Give economical, industrial and ecological importance of lichen.

**Q. 4) What is Carbohydrate? Describe types of carbohydrates with functions.**

**(07)**

**OR**

**A. Give general characteristics of kingdom Monera and kingdom Protista.**

**(04)**

**B. Give general characteristics of Bryophytes, Pteridophytes, Gymnosperms (Any two)**

**(03)**

**PAPER - II (Marks - 25)**

**Q. 1) Select and write appropriate answer from the alternatives**

**(07)**

- 1) Salivary amylase brings about the digestion of \_\_\_\_\_.  
a) protein  
b) fats  
c) carbohydrates  
d) vitamins
- 2) Gastric juice contains \_\_\_\_\_.  
(a)  $H_2SO_4$   
(b) HCL  
(c) Ptyalin  
(d) Bile
- 3) Vitamin  $B_3$  deficiency causes \_\_\_\_\_.  
(a) Night blindness  
(b) Scurvy  
(c) Pellagra  
(d) Rickets
- 4) Mesosomes is produced by the infoldings of \_\_\_\_\_.  
(a) mitochondria  
(b) chloroplast  
(c) golgi complex  
(d) plasma membrane
- 5) Which organelle is surrounded by two membranes?  
(a) Ribosome  
(b) Paroxisomes  
(c) Vacuoles  
(d) Mitochondria
- 6) Nucleic acid and proteins are present in \_\_\_\_\_.  
(a) Ribosome  
(b) Starch  
(c) Insulin  
(d) Glycogen
- 7) Ciliated epithelium is found in \_\_\_\_\_ and trachea.  
(a) uterus  
(b) kidney  
(c) lung  
(d) liver

**Q. 2-A) Answer the questions - Any Four (04)**

- 1) Which tissue consists of basement membrane?
- 2) Write the name of tissue which secretes the enzymes.
- 3) Which cell organelles are commonly called suicide bags?
- 4) Define the term Cell.
- 5) What are vitamins?
- 6) Define the term Digestion.

**Q. 2-B) Draw a neat labeled diagram of Prokaryotic Cell. (02)**

**Q. 2-C) Attempt the questions - Any One (02)**

- 1) Write a note on small intestine.
- 2) Explain squamous epithelium's structure.
- 3) Give the functions of mitochondria.
- 4) Give the functions of chloroplast.

**Q. 3) Answer the questions - Any One (03)**

- 1) State the functions of Saliva and Insulin
- 2) Describe the structure of Areolar connective tissue.
- 3) Describe the structure eukaryotic nucleus.

**Q. 4)**

- A) Explain the digestive system in man. (04)
- B) Describe the structure of adipose connective tissue with diagram. (03)

**OR**

Describe histology and functions of liver (07)

----- ALL THE BEST -----

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LATE MEHERNOSH BOMAN BURJOR IRANI COLLEGE OF ARTS  
BSES JUNIOR COLLEGE OF SCIENCE  
VADKUN, DAHANU ROAD (W.RLY), DIST THANE, MAHARASHTRA - 401602.

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Date: 10/10/2014

**SEMESTER I - OCTOBER 2014**

Max. Marks: 50

Class: F.Y.J.C. SCI

Subject: Biology

Time: 2.5 hours

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**PAPER - I**

**Q. 1) Select and write the appropriate answer from the given alternatives: (06)**

- 1) The cell wall of the plant cell is composed of \_\_\_\_\_.  
(a) True cellulose      (b) Lipoproteins      (c) Chitin      (d) Lipids only
- 2) Which one of the following do not find place in five kingdom system of classification?  
(a) Bacteria      (b) Lichens      (c) Cyanobacteria      (d) Viruses
- 3) The first vascular plants are \_\_\_\_\_.  
(a) Algae      (b) Bryophytes      (c) Pteridophyta      (d) Angiosperms
- 4) Parallel venation is a characteristics feature of \_\_\_\_\_.  
(a) Monocotyledons      (b) Dicotyledons      (c) Bryophytes      (d) Pteridophytes
- 5) Most of the common constituents of organic compounds found in organism are \_\_\_\_\_.  
(a) C, H, O, P      (b) C, H, O      (c) C, H, N, P      (d) C, H, O, N, P
- 6) Majority of cellular enzymes function best at \_\_\_\_\_ pH.  
(a) acidic      (b) basic      (c) neutral      (d) strong base

**Q. 2-A) Answer in one sentence: (06)**

- 1) Why plant fats are liquid at room temperature animal fats are solid?
- 2) Why purins and pyrimidine ration is 1:1 in DNA, while it is not so in RNA?
- 3) What are cryptogams?
- 4) What is meant by heterosporous plants?
- 5) Why it is said that vernacular names create confusion?
- 6) Define term taxonomy.

**Q. 2-B) Attempt ANY THREE questions: (06)**

- 1) Draw a neat labeled diagram of spirogyra.
- 2) Write any two types of viruses.
- 3) Explain the characteristics of division angiosperms.
- 4) Describe general properties of enzyme.
- 5) Explain different types of proteins (any four)

**Q. 3) Attempt ANY ONE question: (07)**

- 1) What are Carbohydrates? Give the classification of carbohydrates.
- 2) What is Lichen? Explain its economical, medicinal and ecological importance.
- 3) Give general characteristics of division Bryophyta with two examples and diagram.

PAPER - II

**Q. 1) Select and write the appropriate answer from the given alternatives: (06)**

- 1) The prokaryotic cell has absence of \_\_\_\_\_.  
(a) Cytoplasm      (b) DNA      (c) Ribosomes      (d) Mitochondria
- 2) Which organelle is surrounded by two membranes?  
(a) Ribosomes      (b) Peroxisomes      (c) Vacuoles      (d) Mitochondria
- 3) Mitochondria present in the eukaryotic cell function for \_\_\_\_\_.  
(a) respiration      (b) photosynthesis      (c) digestion      (d)transpiration
- 4) Emulsification of fats is done by \_\_\_\_\_.  
(a) saliva      (b) gastric juice      (c) bile      (d) intestinal juice
- 5) Vestigial organ of human body is \_\_\_\_\_.  
(a) caecum      (b) ileum      (c) appendix      (d) rectum
- 6) Glucose is stored in the form of glucogen in \_\_\_\_\_.  
(a) stomach      (b) intestine      (c) liver      (d) pancreas

**Q. 2-A) Answer in one sentence: (06)**

- 1) Which are the nutrients present in the food substance?
- 2) What are vitamins?
- 3) Define balanced diet.
- 4) Define Cell.
- 5) What are mesosomes?
- 6) What are plasmids?

**Q. 2-B) Attempt ANY THREE questions: (06)**

- 1) State the functions of endoplasmic reticulum?
- 2) Draw diagram of mitochondria.
- 3) Enlist the different cell organelles present in eukaryotic cells.
- 4) Differentiate between salivary gland and gastric gland.
- 5) Differentiate between small intestine and large intestine.
- 6) State the function of teeth and tongue.

**Q. 3) Attempt ANY ONE question: (07)**

- 1) Describe the histological structure of the liver with the help of diagram.
- 2) Draw a neat labeled diagram of Eukaryotic nucleus and describe structure of Eukaryotic nucleus.

----- ALL THE BEST -----

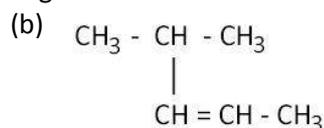
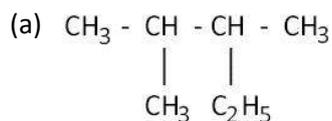


**Q. 5) Select and write the most appropriate answers of the following questions****(05)**

- The general formula of ether is \_\_\_\_\_.
  - $R-O-R^1$
  - $R-CO-R^1$
  - $R-CO-OH$
  - $R-OH$
- The reaction in which alkyl halide reacts with sodium metal to give higher alkanes is called \_\_\_\_\_ reaction.
  - Pyrolysis
  - Dehydrogenation
  - Cracking
  - Wurtz
- The general formula of alkene is \_\_\_\_\_.
  - $C_nH_{2n+2}$
  - $C_nH_{2n-2}$
  - $C_nH_{2n}$
  - None of these
- On heating ethanol with Conc.  $H_2SO_4$  gives \_\_\_\_\_.
  - ethane
  - diethyl ether
  - ethene
  - ethyne
- Stability of carbocation increases as the number of \_\_\_\_\_ substitutes bonded to positively charged carbon atom increases.
  - hydroxyl
  - carboxyl
  - alkyl
  - formyl

**Q. 6) Attempt the following - Any Five****(10)**

- Distinguish between nucleophiles and electrophiles.
- Write a note on Homolytic fission and Heterolytic fission.
- Explain geometrical isomerism in But-2-ene.
- Write a note on ozonolysis of alkene.
- Define pyrolysis. Write pyrolysis of butane.
- Write the IUPAC names of the following:

**Q. 7) Attempt the following - Any Two****(06)**

- Write a note on Inductive effect.
- Define distillation. How sea water is converted into drinking water.
- Write the following conversions.
  - Ethyl Chloride  $\rightarrow$  n-butane
  - Ethyl alcohol  $\rightarrow$  ethylene
  - Ethylene dibromide  $\rightarrow$  ethylene

**Q. 8) Give the classification of Organic Compounds based on their structure.****(04)**

----- ALL THE BEST -----

Date: 09/10/2014

**SEMESTER I - OCTOBER 2014**

Max. Marks: 50

Class: F.Y.J.C. SCI

Subject: Chemistry

Time: 2.5 hours

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**SECTION - I**

**Q. 1) Select and write appropriate answer from the given alternatives (05)**

- 1) Introduction of neutron into nucleus of an atom would lead to change in \_\_\_\_\_.  
(a) Number of Electrons (b) chemical nature of atom (c) atomic number (d) mass number
- 2) The order of filling of electrons in the orbitals of an atom will be \_\_\_\_\_.  
(a) 3d, 4s, 4p, d, 5s (b) 4s, 3d, 4p, 5s, 4d (c) 5s, 4p, 3d, 4d, 5s (d) 3d, 4p, 4s, 4d, 5s
- 3) The screening effect of d-electrons is \_\_\_\_\_.  
(a) equal to that of p-electrons (b) more than that of p-electrons  
(c) none of these (d) less than p-electrons
- 4) Which pair of atomic number represents s-block elements?  
(a) 7, 15 (b) 6, 12 (c) 9, 17 (d) 3, 12
- 5) Oxidation number of chlorine in  $\text{HClO}_4$  is \_\_\_\_\_.  
(a) +1 (b) -1 (c) -7 (d) +7

**Q. 2) Attempt ANY FIVE of the following: (10)**

- 1) Write a note on discovery of Proton.
- 2) Define: (a) Electronegativity (b) Oxidation on the basis of oxidation number
- 3) Identify oxidizing and reducing agents in following redox reaction:  $\text{Zn} + 2\text{HCl} \longrightarrow \text{ZnCl}_2 + \text{H}_2$
- 4) Give structural features of long form of periodic table.
- 5) State and explain Hund's rule of maximum multiplicity.
- 6) Write any two properties of electrons and neutrons.

**Q. 3) Attempt ANY TWO of the following: (06)**

- 1) Define Ionisation enthalpy. How it varies across the periods and groups.
- 2) Balance the following redox reaction:  $\text{Fe}^{2+} + \text{BrO}_3^- \longrightarrow \text{Fe}^{3+} + \text{Br}^-$
- 3) Describe in brief Rutherford's atomic model.

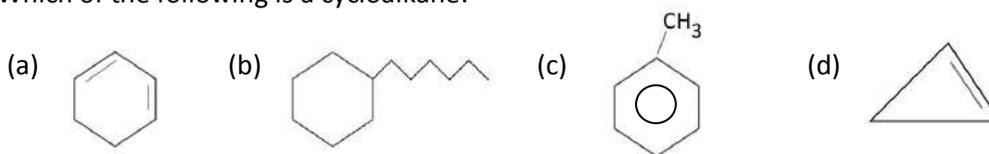
**Q. 4) Define Quantum number and Atomic number (04)**

- 1) If  $n=2$ , what are the allowed values of quantum number  $l$  &  $m$
- 2) If  $n=3$  what are the allowed values of quantum number  $l$  &  $m$

SECTION - II

**Q. 5) Select and write appropriate answer from the given alternatives: (05)**

1) Which of the following is a cycloalkane:



2) Which of the following is an electrophile?

(a)  $\text{CN}^-$  (b)  $\text{R-O-H}$  (c)  $\text{BF}_3$  (d)  $\text{NH}_3$

3) Identify the bond formed which is polar in nature.

(a)  $\text{H-H}$  (b)  $\text{Cl-Cl}$  (c)  $\text{O=O}$  (d)  $\text{H-O-H}$

4) Alkyl halides on \_\_\_\_\_ with Zn - Cu couple and alcohol, give alkanes.

(a) oxidation (b) hydrolysis (c) reduction (d) halogenation

5) The conversion of ethyl chloride to ethene is called \_\_\_\_\_.

(a) dehalogenation (b) dehydrogenation (c) dehydrohalogenation (d) dechlorination

**Q. 6) Attempt ANY FIVE of the following: (10)**

1) Distinguish between nucleophiles and electrophiles.

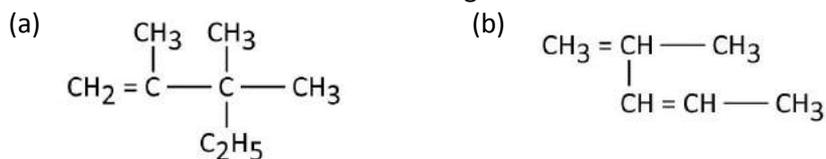
2) Draw geometrical isomers of pent-2-ene.

3) Write the general molecular formula and functional group of ester and acid chlorides.

4) Write the following conversions:

(a) Propane  $\rightarrow$  nitropropane (b) Propane  $\rightarrow$  Propene

5) Write the IUPAC names of the following:



6) Write a note on pyrolysis reaction.

**Q. 7) Attempt ANY TWO of the following: (06)**

1) Write a note on Inductive effect

2) How will you separate a mixture of two impure liquids?

3) (a) What happens when but-1-ene react with hydrogen bromide in presence of peroxide?

(b) What happens when ethyl alcohol reacts with concentrated Sulphuric acid?

(c) What is the action of ozone on ethene?

**Q. 8) How will you classify the organic compounds on the basis of their structures? (04)**

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BSES JUNIOR COLLEGE OF SCIENCE

VADKUN, DAHANU ROAD (W.RLY), DIST THANE, MAHARASHTRA - 401602.

Date: 26/10/2013

**FIRST TERM END EXAM - OCTOBER 2013**

Max. Marks: 50

Class: F.Y.J.C. (SCI)

Subject: Mathematics

Time: 2.5 hours

**SECTION A**

**Q. 1) Select the correct alternative for the following questions**

**(04)**

1)  $1^c =$  \_\_\_\_\_.

(a)  $57^\circ 19' 48''$

(c)  $57^\circ 17' 38''$

(b)  $57^\circ 17' 48''$

(d)  $57^\circ 17' 40''$

2) Equation of line passing through the point (3, -2) with slope -2.

(a)  $2x + y - 4 = 0$

(c)  $2x + y + 4 = 0$

(b)  $2x - y - 4 = 0$

(d) None

**Q. 2) Solve the following - Any Four**

**(08)**

1) The measures of angles of quadrilateral are in ratio 3:4:5:6. Find their measures in degrees.

2) Eliminate  $\theta$  if,  $x = a \sec \theta$   $y = b \tan \theta$

3) Find equation of line passing through the points (4, 3) and (3, -5)

4) Prove that: 
$$\sqrt{\frac{\operatorname{cosec} \chi - 1}{\operatorname{cosec} \chi + 1}} = \frac{1}{\sec \chi + \tan \chi}$$

5) Find the acute angle between the following pairs of lines:  $x + 3y + 5 = 0$  and  $2x + y - 1 = 0$ .

**Q. 3) Solve the following - Any Three**

**(09)**

1) Find the equation of Locus of point P, A (1, 2) and B (3, 4) are at equal distance from point P.

2) Find the equation of Lines which pass through the points (3, 4) and sum of whose intercepts on axes is 14.

3) Find the values of 'k' for which length of perpendicular from the point (4, 1) on the line  $3x - 4y + k = 0$  is 2 units.

4) Find the equation of Line passing through the point (4, 3) and perpendicular to the line  $3x - 2y + 5 = 0$ .

**Q. 4) Solve the following - Any One**

**(04)**

- 1) A (2, 5) B (6, -1) and C (-4, -3) are the vertices of triangle  $\triangle ABC$ . Find equation of:  
(a) Median through A (b) Altitude through B
- 2) Find the value of 'k' if the lines  $3x - 4y - 13 = 0$  ;  $8x - 11y - 33 = 0$  and  $2x - 3y + k = 0$  are concurrent.

**SECTION B**

**Q. 1) Select the correct alternative for the following questions**

**(04)**

- 1)  $\log_2 32 =$  \_\_\_\_\_  
(a) 16 (b) 8 (c) 5 (d) 3
- 2)  $t_n$  for the A.P. 32, 28, 24, 20 . . . . . is given by  
(a)  $t_n = 36 - 4n$  (c)  $t_n = 4n - 36$   
(b)  $t_n = -36 - 4n$  (d)  $t_n = 4n + 36$

**Q. 2) Solve the following - Any Four**

**(08)**

- 1) Simplify  $\log_{10} 5 + 2 \log_{10} 4$
- 2) Express  $\frac{2 + 3i}{4 + 3i}$  in the form of  $a + ib$
- 3) Find the sum  $\sum_{r=1}^n (6r^2 - 2r + 6)$
- 4) For a C.P.  $t_8 = 640$ ,  $r = 2$  find a.
- 5) If for an A.P.  $S_{16} = 784$  and  $a = 4$ , find the value of 'd'.

**Q. 3) Attempt the following - Any Three**

**(09)**

- 1) Find G.M. of two positive numbers whose AM and HM are 12 & 3 respectively.
- 2) Find sum to n terms  $2 + 22 + 222 + \dots$
- 3) Solve the following quadratic equation:  $2x^2 + 3ix + 2 = 0$
- 4) Find the sum of all natural numbers from 1 to 200 which are divisible by 3.

**Q. 4) Attempt the following - Any One**

**(04)**

- 1) Find three numbers in G.P. such that their sum is 35 and their product is 1000.
- 2) Find two numbers whose A.M. exceeds their G.M. by 30 and their H.M. by 48.

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BSES JUNIOR COLLEGE OF SCIENCE

VADKUN, DAHANU ROAD (W.RLY), DIST THANE, MAHARASHTRA - 401602.

Date: 11/10/2014

**SEMESTER I - OCTOBER 2014**

Max. Marks: 50

Class: F.Y.J.C. SCI

Subject: Mathematics

Time: 2.5 hours

**SECTION - A**

**Q. 1) Select and write the correct alternative for the following: (04)**

- 1) The value of  $\log(\log X^4) - \log(\log X)$  is \_\_\_\_\_.
- (a)  $\log 2$  (b)  $2\log 4$  (c)  $2\log 2$  (d)  $\frac{1}{2}\log 2$
- 2) Modulus and amplitude for  $-8 + 15i$  is \_\_\_\_\_ and \_\_\_\_\_.
- (a) 17 and  $\tan^{-1}(15/8)$  (b) 17 and  $-\tan(15/8)$   
(c) -17 and  $\tan^{-1}(15/8)$  (d) None of these

**Q. 2) Solve ANY FOUR of the following: (08)**

- 1) Express the following in the form of  $a + ib$ :  $(1+2i)(-2+i)$
- 2) If  $w$  is the complex cube root of unity, find the value of  $(1+w^2)^3$
- 3) Find the value of  $x$  if:  $\log(3x + 2) - \log(3x-2) = \log 5$
- 4) Evaluate  $\log_{25}\sqrt{5} \times \log_3(1/9)$
- 5) Find the value of  $i^{49} + i^{68} + i^{89} + i^{110}$

**Q. 3) Solve ANY THREE of the following: (09)**

- 1) If  $w$  is the complex cube root of unity, find the value of  $(1+w-w^2)^6 = 64$
- 2) Solve  $2x^2 + 3ix + 2 = 0$
- 3) Prove that  $1/\log_6 24 + 1/\log_{12} 24 + 1/\log_8 24 = 2$
- 4) Evaluate  $\sqrt{\frac{16.23}{426.8}}$  by using log table

**Q. 4) Solve ANY ONE of the following: (04)**

- 1) Prove that  $(1+i)^4 \times (1+1/i)^4 = 16$
- 2) If area of circle is 88.2 sq.m. and  $\pi = 3.142$ , find  $r$  correct to two significant figure.

**SECTION - B**

**Q. 1) Select and write the correct alternative for the following: (04)**

1)  $\tan 15^\circ =$  \_\_\_\_\_.

- (a)  $\sqrt{3} + 1 / \sqrt{3} - 1$  (b)  $\sqrt{3} - 1 / \sqrt{3} + 1$  (c)  $1 - \sqrt{3} / 1 + \sqrt{3}$  (d)  $1 + \sqrt{3} / 1 - \sqrt{3}$

2) The value of  $1^c =$  \_\_\_\_\_.

- (a)  $57^\circ 48' 17''$  (b)  $57^\circ 17' 48''$  (c)  $57^\circ 38' 17''$  (d) None of these

**Q. 2) Solve ANY FOUR: (08)**

1) Find the length of an arc of circle which subtends the angle of  $108^\circ$  at the centre. If the radius of the circle is 15cms.

2) Prove the following:  $\tan\theta + \cot\theta = 2\operatorname{cosec}2\theta$

3) Show that  $\frac{\cos\theta + \cos\phi}{\sin\theta + \sin\phi} = \cot\left(\frac{\theta + \phi}{2}\right)$

4) Verify that  $4 \cot^2 30^\circ + 9 \sin^2 60^\circ - 6 \operatorname{cosec}^2 60^\circ - 9/4 \tan^2 60^\circ = 4$

5) If  $\tan \theta = -2$  and  $\theta$  lies in the second quadrant, find the value of  $\sin \theta$  and  $\cos \theta$

**Q. 3) Solve ANY THREE of the following: (09)**

1) In  $\triangle ABC$ , show that  $\sin 2A + \sin 2B - \sin 2C = 4 \cdot \cos A \cdot \cos B \cdot \sin C$

2) Show that  $\frac{\sin A + \sin 5A + \sin 9A}{\cos A + \cos 5A + \cos 9A} = \tan 5A$

3) Prove that  $\tan(\pi/4 + \theta) - \tan(\pi/4 - \theta) = 2\tan 2\theta$

4) OAB is a sector of circle with centre O and radius 12cm. If  $\angle AOB = 60^\circ$ , find the difference between the area of sector OAB and  $\triangle AOB$ .

**Q. 4) Solve ANY ONE of the following: (04)**

1)  $\cos A + \cos B + \cos C = 1 + 4 \sin(A/2) \cdot \sin(B/2) \cdot \sin(C/2)$

2) Prove that:

(a)  $\tan 18^\circ + \tan 27^\circ + \tan 18^\circ \cdot \tan 27^\circ = 1$

(b) If  $\tan A = 5/6$ ,  $\tan B = 1/11$ ; Prove that  $A + B = \pi/4$

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BSES JUNIOR COLLEGE OF SCIENCE

VADKUN, DAHANU ROAD (W.RLY), DIST THANE, MAHARASHTRA - 401602.

Date: 23/10/2013

**FIRST TERM END EXAM - OCTOBER 2013**

Max. Marks: 50

Class: F.Y.J.C. (SCI)

Subject: Physics

Time: 2.5 hours

**Instructions:**

- 1) All questions are compulsory.
- 2) Draw diagrams wherever necessary.
- 3) Use of log table is allowed.

**Q. 1) Select and write the most appropriate answers of the following questions**

**(07)**

- 1) The weakest force in the nature out of the following real forces is \_\_\_\_\_.  
(a) gravitational force (c) strong nuclear force  
(b) electromagnetic force (d) weak nuclear force
- 2) The quantity which is scalar from the given physical quantities is \_\_\_\_\_.  
(a) velocity (c) speed  
(b) force (d) torque
- 3) The dimensions of work done are equivalent to the dimensions of \_\_\_\_\_.  
(a) force (c) kinetic energy  
(b) acceleration (d) power
- 4) The scattering of which colour of light is maximum out of the following.  
(a) orange (c) yellow  
(b) blue (d) violet
- 5) The dimensions of electric dipole moment are \_\_\_\_\_.  
(a)  $[M^0 L^1 T^2 I^1]$  (c)  $[M^0 L^1 T^1 I^1]$   
(b)  $[M^0 L^2 T^1 I^1]$  (d)  $[M^0 L^2 T^2 I^1]$
- 6) The energy gained by an electron when it is accelerated through potential difference of 200 V is \_\_\_\_\_.  
(a)  $3.4 \times 10^{-17}$  joule (c)  $3.2 \times 10^{-17}$  joule  
(b)  $3.3 \times 10^{-17}$  joule (d)  $3.0 \times 10^{-17}$  joule
- 7) Wavelengths of light in water and glass are 4000 Å & 2500 Å respectively. The R.I. of glass with respect to water is \_\_\_\_\_.  
(a) 1.60 (c) 1.67  
(b) 1.63 (d) 1.69

**Q. 2) Attempt the following - Any Six****(12)**

- 1) State any four rules of significant figures.
- 2) Find the magnitude of a vector by resolution using 2-dimensions.
- 3) State the characteristics of gravitational force.
- 4) Why the sky appears blue?
- 5) What is the magnitude of a point charge chosen so that the electric field 50 cm away has magnitude 2.0 N/C ?  $\left[ \frac{1}{4 \pi \epsilon_0} = 9 \times 10^9 \text{ S.I. Unit} \right]$
- 6) A ray of light is incident at an angle of  $50^\circ$  with the surface of glass of R.I. 1.5. Find the deviation of ray when it enters glass.
- 7) If length 'L', force 'F' and time 'T' are taken as fundamental quantities, find the dimension equation of mass.
- 8) Find 'a', if are  $\vec{A} = 3\hat{i} - 2\hat{j} + 4\hat{k}$  &  $\vec{B} = a\hat{i} + 2\hat{j} - \hat{k}$  perpendicular to each other.

**Q. 3) Attempt the following - Any Five****(15)**

- 1) Using dimensional analysis prove that the period of simple pendulum is  $T = 2\pi \sqrt{\frac{l}{g}}$
- 2) State and prove the laws of conservation of linear momentum.
- 3) Find the equation of electric intensity at a point due to a point charge.
- 4) State and prove work energy theorem.
- 5) Find unit vectors perpendicular to the plane of the vectors  $\vec{A} = \hat{i} - 2\hat{j} + \hat{k}$  &  $\vec{B} = 2\hat{i} - \hat{k}$
- 6) The R.I.S. of the material of the prism for red and yellow colours are 1.620 & 1.635 respectively. Calculate the angular dispersion and dispersive power, if the refracting angle of prism is  $5^\circ$ .
- 7) Define electric lines of force and state its' any four properties.

**Q. 4) Attempt the following - Any Four****(16)**

- 1) Define:
  - (a) Scalar product of two vectors
  - (b) Vector product of two vectors & show that  $\vec{A} \times \vec{B}$  is a determinant.
- 2) Define elastic collision and find the equations of final velocities of the bodies after collision.
- 3) Define electric potential and find the equations of electric potential at a point due to a point charge.
- 4) Explain deviation without dispersion from the combination of two prisms.
- 5) The length of metal plate was measured using a vernier caliper of L.C. 0.01 cm. The measurements made are 3.11 cm, 3.13 cm, 3.14 cm & 3.14 cm. Find the mean length, mean absolute error, relative error and percentage error in the measurement of length.

----- ALL THE BEST -----

**DNYAN BHARTI SOCIETY'S**

SAU. SITABAI RAMKRUSHNA KARANDIKAR SENIOR COLLEGE OF COMMERCE

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BSES JUNIOR COLLEGE OF SCIENCE

VADKUN, DAHANU ROAD (W.RLY), DIST THANE, MAHARASHTRA - 401602.

Date: 08/10/2014

**SEMESTER I - OCTOBER 2014**

Max. Marks: 50

Class: F.Y.J.C. SCI

Subject: Physics

Time: 2.5 hours

**Instructions:** 1) All questions are compulsory 2) Draw diagrams wherever necessary  
3) Use of log table is allowed

**SECTION - I**

**Q. 1) Select and write the most appropriate answers of the following questions: (05)**

- Which of the following pairs are similar?  
(a) Work & Power (b) Momentum & Energy (c) Force & Power (d) Work & Energy
- $[L^2 M^1 T^{-1}]$  are the dimensions for \_\_\_\_\_.  
(a) Pressure (b) Power (c) Force (d) Work
- A Force  $\vec{F} = 4\hat{i} + 6\hat{j} + 3\hat{k}$  acting on a particle produces a displacement of  $\vec{S} = 2\hat{i} + 3\hat{j} + 5\hat{k}$ , where F is expressed in newton and S in meter, then its work done by the Force is \_\_\_\_\_.  
(a) 40.5 J (b) 41 J (c) 41.5 J (d) 42 J
- If  $\vec{A} \cdot \vec{B} = 0$  and  $\vec{A} \times \vec{B} = 0$ , then \_\_\_\_\_ is true.  
(a)  $\theta = 0$  (b)  $A = 0, B = 0$  (c)  $A \neq 0, B = 0$  (d)  $A = B = \theta = 0$
- \_\_\_\_\_ is not a scalar quantity.  
(a) Momentum (b) Temperature (c) Length (d) Time

**Q. 2) Solve ANY THREE: (06)**

- Find the dimensions of permittivity of vacuum ( $\epsilon_0$ ).
- (a) Find the order of magnitude of the period of the rotation of the earth about its own axis.  
(b) The number of significant figure in the number  $2.35 \times 10^{-19}$  is \_\_\_\_.
- State triangle law of vector addition and prove commutative law of vector addition by diagram.
- In Cartesian co-ordinates system, the co-ordinates of two points P & Q are (2,4,4) and (-2,-3,7) respectively. Find  $\vec{PQ}$  and its magnitude.

**Q. 3) Solve ANY TWO: (06)**

- Show that:  $\vec{P} \times \vec{Q} = \begin{vmatrix} \hat{i} & \hat{j} & \hat{k} \\ P_x & P_y & P_z \\ Q_x & Q_y & Q_z \end{vmatrix}$
- Explain method for measurement of length.
- If length 'L', force 'F' and time 'T' are taken as fundamental quantities, what would be the dimensional equation of mass and density?
- If  $\vec{A} = 2\hat{i} + 7\hat{j} + 3\hat{k}$  and  $\vec{B} = 3\hat{i} + 2\hat{j} + 5\hat{k}$ , find the component of  $\vec{A}$  &  $\vec{B}$ .

**Q. 4) Solve ANY TWO: (08)**

- State law of parallelogram of vector addition and find the amplitude and direction of resultant vector.
- Explain: (a) Systematic error (b) Personal error; and how effect of errors can be minimized?
- Find the unit vector perpendicular to the plane of the vectors.

$$\vec{A} = \hat{i} - 2\hat{j} + \hat{k} \quad \vec{B} = 2\hat{i} - \hat{k}$$

**SECTION - II**

**Q. 1) Select and write the most appropriate answers of the following questions: (05)**

- 1) When a ray of light travels from rarer medium to denser medium then light ray bends \_\_\_\_\_ the normal.  
(a) parallel to            (b) perpendicular to    (c) away from            (d) towards
- 2) The refractive index of air w.r.t. glass is  $2/3$ . The refractive index of diamond w.r.t. air is  $12/5$ . Then the refractive index of glass w.r.t. diamond will be \_\_\_\_\_.  
(a)  $5/8$                     (b)  $8/9$                     (c)  $5/18$                     (d)  $18/5$
- 3) The focal length of a lens is different for different colours because \_\_\_\_\_.  
(a) frequency of different colours is different  
(b) refractive index of the different colour is different  
(c) radius of curvature is different  
(d) none of these
- 4) Total charge of an isolated system \_\_\_\_\_.  
(a) increases            (b) decreases            (c) remains constant    (d) none of these
- 5) Lines of Force pass through \_\_\_\_\_ and do not pass through \_\_\_\_\_.  
(a) insulator, conductor                    (b) insulator, semiconductor  
(c) conductor, semiconductor            (d) conductor, insulator

**Q. 2) Solve ANY THREE: (06)**

- 1) Write note on optical fibre.
- 2) Draw neat ray diagram to obtain the Focus (a) for concave mirror (b) for convex mirror
- 3) State the properties of electric lines of Forces.
- 4) What is magnitude of point charge chosen so that the electric field 50 cm away has magnitude  $2.0 \text{ N/C}$ ?

**Q. 3) Solve ANY TWO: (06)**

- 1) State and explain Coulomb's law in electrostatics.
- 2) State Rayleigh's law of scattering and explain why the sky appears blue.
- 3) With neat ray diagram obtain mirror equation.
- 4) In an equilateral glass prism, for two angles of incidence, differing by  $10^\circ$ , the angle of deviation found to be  $40^\circ$ , find these angle of incidence.

**Q. 4) Attempt ANY TWO: (08)**

- 1) Explain refraction at single curved surface and find the relation between  $U, V, R, U_1$  and  $U_2$ .
- 2) Obtain an expression of electric potential at a point due to a point charge.
- 3) With neat ray diagram of prism obtain an expression for refractive index of material of prism.

----- **ALL THE BEST** -----