

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: 21/01/2014

PRELIMINARY EXAM - JANUARY 2014

Max. Marks: 25

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

Subject: English

Time: 1.15 hours

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

(11)

The bus used for transport transforms into a classroom once it has dropped children to their respective schools. The bus becomes a School-on-Wheels. It is a bus that is furnished and equipped to be used as a classroom. It can accommodate around 25 students at a time. The School-on-Wheels project is the flagship of Door Step's attempts to take education to out of school children who dwell on the very fringes of society. "School-on-Wheels is a means to impart basic literacy skills to the less settled groups of children, viz. those who live on pavements, station platforms or street corners and are often seen begging. These groups are very mobile and usually there is no facility to run classes in the areas where they dwell. A bus provides the most suitable alternative for such a classroom".

The Door Step School considers education as a solution to many social problems."Education always opens doors for a brighter future. People who are even a bit literate have better opportunities in life. If one person is educated, he inspires several around him. According to me, illiteracy is non-recurring. Also, problems like population, poverty, crime can be considerably solved with education. Furthermost, if we educate our children, adult illiteracy will no longer exist," beams Rajani.

1. Who are the less settled group of children? (01)
2. When does the bus transform in to a classroom? (02)
3. How will the adult literacy problem be solved according to Ms. Rajani? (02)
4. Do you think the social problems mentioned above can be solved by education? (02)
5. Do as directed:
 - (a) Pune is known for its heavy and undisciplined traffic (01)
(Use not only ... but also)
 - (b) The Door Step School also provides facility for transport (01)
(Add a question tag)
 - (c) One can save resources. (01)
(Change the voice)
6. Give antonyms
 - (a) mobile (b) social (01)

- Q. 1-B) Grammar: Do as Directed (06)**
- 1) I lost _____ pen you gave me. So I purchased _____ new one. (01)
(Use proper articles)
 - 2) I met her _____ the bus stop. Then we had gone to Pune. (01)
(Use appropriate preposition)
 - 3) He _____ (remember) the day he first _____ (go) to school. (01)
(Rewrite using proper forms of the verbs)
 - 4) She said, "I bought a new dress yesterday." (01)
(Change into indirect speech)
 - 5) As soon as the thief ran out of jail, the guard fired at him. (01)
(Use no sooner ... than)
 - 6) It is a horrible night. (01)
(Make it exclamatory)

Q. 2) 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 behind in the village and come here

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

1. What has the lady left in the village? (01)
2. How does the lady describe her "this day"? (01)
3. Do you also have complaints against the city life like the lady? Explain. (01)
4. Pick up an example of Repetition and explain it. (01)

Q. 3) Read the following advertisement and prepare a letter of application. (04)
(Do not give your bio-data)

SITUATION VACANT

Wanted

English Teacher to teach for IXth & Xth standards.

Candidate must have passed B.A. B.Ed.

Must be ready to work in villages.

Write giving details to:

The Chairman, Modern Education Society, Pune - 04.

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

Date: 12/01/2015

UNIT TEST II - JANUARY 2015

Max. Marks: 25

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

Subject: English

Time: 1.15 hours

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

But the dog refused. Mayank reached out under the car to try to touch it. It shrank away and moved further back. Mayank felt hurt and disappointed. He wondered what to do. Then he had a brain wave. "It's probably hungry. It needs food. F-O-O-D. Why didn't I think of that before?" he wondered.

In he went, running to his mother. "Mummy, Mummy, may I please have a slice of bread? There's a beautiful puppy outside and he's very hungry." Mayank's mother paused for a moment before replying: "There you go again, chasing pups and kittens. Why don't you let them alone? Once you start feeding them, they'll come every day. I don't want a nuisance in my house." Mayank used all his pervasive skills to plead with his mother. "Please, Mummy, just want him to have a little bit of bread before he is driven away."

Still muttering her disapproval, his mother gave him a slice. Then on a generous impulse, she also gave him a couple of glucose biscuits. "Here, try these on him. But don't be too long, okay? Your father will be coming back any minute." Mayank's mother was loving, yet strict enough not to let her son get spoiled. Though she instinctively disapproved, of Mayank's latest adventure with the stray pup, she let him go ahead. "Perhaps he'll learn something," she thought to herself. "Certainly, it's not wrong to love animals and plants. It makes children sensitive."

So Mayank got his way. Armed with the tempting snacks, he made a renewed bid on the pup. He called it many names, even "Tiger", he threw little crumbs of the biscuits and bread in front of it. The puppy went round and round the car, always moving as far away from the child as possible. It ignored the food.

1. Which of the following titles describes the passage appropriately? (01)
 - (a) Mayank's mother's disapproval
 - (b) Mayank's mother's kindness
 - (c) Mayank's mother's foolishness
2. How did Mayank tempt the puppy to come close? (02)
3. Why was Mayank's mother reluctant to give him a slice of bread for the puppy? (02)
4. What do you come to know about Mayank's Mother? (02)
5. Do as directed:
 - (a) Why don't you let them alone? (01)
(Rewrite as a Statement)
 - (b) "Perhaps he'll learn something," she thought to herself. (01)
(Change to Reported Speech)
 - (c) Mayank felt hurt and disappointed. (01)
(Rewrite using 'as well as')
6. The word 'muttering' means _____. (01)

Q. 1-B) Do as directed (06)

- 1) Yesterday I saw _____ european riding on _____ horse. (01)
(Use appropriate articles)
- 2) The two boys sat _____ the tree and shared the sweets _____ themselves. (01)
(Use proper prepositions)
- 3) The little boy said, 'I am very tired now. I want to go to sleep.'" (02)
(Change to indirect speech)
- 4) How could I call him only a half? (01)
(Rewrite as an Assertive sentence)
- 5) Mayank would do his homework daily. (01)
(Rewrite using used to)

Q. 2) 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. 3) Read the following extract. (04)

HIGH above the city, on a tall column, stood the statue of the Happy Prince. He was gilded all over with thin leaves of fine gold, for eyes he had two bright sapphires, and a large red ruby glowed on his sword-hilt.

He was very much admired indeed. 'He is as beautiful as a weathercock,' remarked one of the Town Councillors who wished to gain a reputation for having artistic taste; 'only not quite so useful,' he added, fearing lest people should think him unpractical, which he really was not.

'Why can't you be like the Happy Prince?' asked a sensible mother of her little boy who was crying for the moon. 'The Happy Prince never dreams of crying for anything.'

'I am glad there is someone in the world who is quite happy', muttered a disappointed man as he gazed at the wonderful statue.

'He looks just like an angel,' said the Charity Children as they came out of the cathedral in their bright scarlet cloaks, and their clean white pinafores.

'How do you know?' said the Mathematical Master, 'you have never seen one.'

'Ah! but we have, in our dreams,' answered the children; and the Mathematical Master frowned and looked very severe, for he did not approve of children dreaming.

Imagine you are a person living in the city which had the statue of the Happy Prince. Describe the Happy Prince and narrate how the different people in the city admired the statue of the Happy Prince.

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

Date: 11/01/2016

II UNIT TEST - JANUARY 2016

Max. Marks: 25

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

Subject: English

Time: 1.15 hours

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

The shadows lengthened. Dusk fell. Mayank had been trying to make friends with the pup for nearly two hours. He felt tired and dispirited. The dog had rejected all his advances. And he had tried so hard. What was baffling was that a stray dog was spurning food, love, and shelter. What was its future going to be? It would roam around like other stray dogs - fed occasionally but most often kicked and insulted. What a life!

Finally, Mayank gave up. Quietly he went inside. Going to his room, he gently shut the door behind him. He took out his homework but found that he couldn't study. His mother noticed him going in but didn't stop him. She had guessed that his adventure with the puppy hadn't quiet taken off, though she didn't know exactly what had gone wrong. She thought it best not to broach the topic just yet. Children don't like to be reminded of their failures, she knew.

No matter how hard he tried to forget the pup, Mayank's mind kept wandering back to it. Why had it behaved that way? Why did it refused to eat? Why was it always trying to run away from him? He felt upset and confused. Somehow he managed to go through his homework but his mind was uneasy. He was on the verge of tears.

Just then his mother opened the door. It was time for dinner. His father had already come back. He had changed, had his cup of tea and the usual chat with Mummy. Now both of them were waiting for him. Mayank quickly controlled himself.

His mother gave him a kiss and both of them went to the drawing room silently. Mayank's father was in his early forties, a fairly successful executive in a large company. He was a great reader of books and had a warm, sensitive face. He instantly welcomed Mayank and stroked his hair affectionately. "What's the matter? Why are you looking so glum?" he asked.

1. What does this extract reveal about Mayank's mother? (01)
2. Why was Mayank sad? (01)
3. Why was Mayank unable to study? (02)
4. What do you know about Mayank's father? (02)
5. Do as directed:
 - (a) What a life! (01)
(Change to Assertive Sentence)
 - (b) Going to his room he gently shut the door. (01)
(Change to a Compound Sentence)
 - (c) It was time for dinner (01)
(Rewrite as an Interrogative Sentence)
6. Give the Verb forms of:
 - (a) dinner (b) failures (01)

- Q. 1-B) Grammar: Do as Directed (06)**
- 1) Pay _____ price of _____ book you lost. (01)
(Use proper articles)
 - 2) I put my assignment _____ the file kept _____ the cupboard. (01)
(Use proper preposition)
 - 3) "I don't agree with you", said Jennifer, "I will not be responsible if there is any trouble." (02)
(Change into indirect speech)
 - 4) As soon as my sister entered, I walked out. (01)
(Use no sooner ... than)
 - 5) I sat outside for a long time. (01)
(Add a question tag)

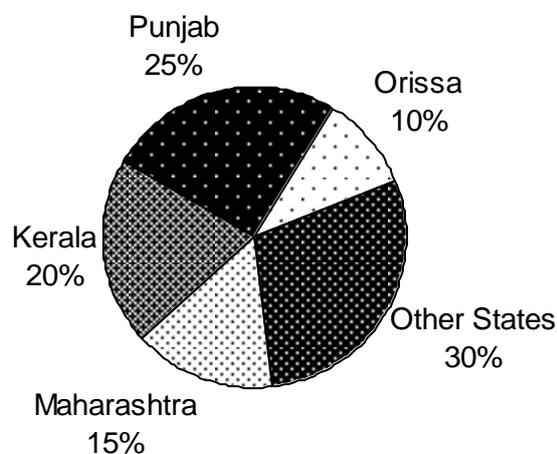
Q. 2) Read the following extract and answer the questions given below: (04)

On journeys through the States we start,
(Ay, through the world, urged by these songs,
Sailing henceforth to every land, to every sea;)
We, willing learners of all, teachers of all, and lovers of all.

We have watch'd the seasons dispensing themselves and passing on,
And have said, Why should not a man or woman do as much as the
seasons, and effuse as much?

1. Who are the speakers in the poem who are to start on their journey? (01)
2. Why do you think the second and third lines are in brackets? (01)
3. Identify and explain the figure of speech in the first line. (01)
4. Do you think the poet's advice is useful to us Indians too? How? (01)

Q. 3) Study the following pie-chart carefully and write a short paragraph on "The Production of Rice in various States." (04)



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Date: 16/01/2014

UNIT TEST II - JANUARY 2014

Max. Marks: 25

Class: F.Y.J.C. SCI

Subject: Biology

Time: 1.15 hours

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

- 1) Root hair will absorb the water when external solution is _____.
(a) viscous (b) isotonic (c) hypertonic (d) hypotonic
- 2) Which of the following is the major source of water for land plants?
(a) Gravitational water (b) Hygroscopic water (c) Capillary water (d) Combined water
- 3) Heart is made up of _____.
(a) Skeletal tissue (b) muscular tissue (c) cardiac tissue (d) adipose tissue
- 4) The white fibres are chemically composed of _____.
(a) Myosin (b) elastin (c) collagen (d) actin
- 5) The longitudinal canals of a bone are called _____.
(a) Marrow cavity (b) Eustachian canals (c) Volkmann's canals (d) Haversian canals
- 6) Human body consists of about _____ different types total bones.
(a) 206 (b) 207 (c) 208 (d) 209
- 7) Which is limb bone?
(a) Lumbar (b) Humerus (c) Axis (d) coccyx

Q. 2-A) Attempt the following questions and write answers in one sentence (06)

- 1) How many bones are present in thoracic cage?
- 2) Write the names of two girdles in Appendicular skeleton?
- 3) What are ligaments?
- 4) Which muscle is called voluntary muscle and why?
- 5) Define Imbibition.
- 6) Define Osmosis.

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

- 1) Draw a neat labeled diagram of Neutron.
- 2) Describe structure of smooth muscle fibre.
- 3) What are apoplast and symplast pathways.
- 4) What are joints and write name of fixed joints.

Q. 3) Attempt ANY TWO questions (06)

- 1) Describe the different types of cartilage
- 2) Describe the structure of root hair with diagram
- 3) What is Cohesion Tension theory in respect of cohesion of water and Adhesion of water

OR

Describe Striated muscle fibre with diagram (06)

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Date: 17/01/2014

UNIT TEST II - JANUARY 2014

Max. Marks: 25

Class: F.Y.J.C. SCI

Subject: Chemistry

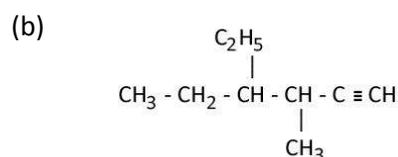
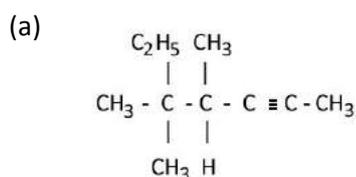
Time: 1.15 hours

Q. 1) Select and write the most appropriate answer from the given alternatives (04)

- 1) The relation between K_c & K_p for the reaction $A_{(g)} + B_{(g)} \rightleftharpoons C_{(g)} + D_{(g)}$
- (a) $K_c = 1/K_p$ (b) $K_p/K_c = 1$ (c) $K_p = 1 - K_c$ (d) None of these
- 2) The product formed, when acetylene is passed through red hot iron tube is,
 (a) Cyclohexane (b) Ethane (c) Neoprene (d) Benzene
- 3) How many electrons will be found around S in SF_6
 (a) 8 (b) 10 (c) 6 (d) 12
- 4) Ionic bonds are formed between
 (a) negatively charged ions (c) oppositely charged ions
 (b) positively charged ions (d) neutral atoms

Q. 2) Attempt ANY FOUR of the following (08)

- 1) Explain the factors affecting on rate of reaction.
 2) State octet rule & write electron dot formula of BF_3
 3) State & explain law of mass action.
 4) Write IUPAC name of the following:



- 5) Define: (a) Reversible reactions (b) Irreversible reactions

Q. 3) Attempt ANY THREE of the following (09)

- 1) Write the postulates of valance bond theory.
 2) Explain with example the types of overlapping
 3) Calculate K_c & K_p at 500k for reaction: $2\text{HI} \rightleftharpoons \text{H}_2 + \text{I}_2$

if the equilibrium concentrations are: $[\text{H}_1] = 0.5\text{M}$, $[\text{H}_2] = 0.08\text{M}$ and $[\text{I}_2] = 0.062\text{M}$

- 4) Write the following conversions:
 (a) Acetylene to benzene
 (b) Acetylene to ethane
 (c) Calcium carbide to acetylene

Q. 4) Derive the relationship between K_c & K_p for reaction: (04)



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

Date: 14/01/2016

UNIT TEST II - JANUARY 2016

Max. Marks: 25

Class: F.Y.J.C. SCI

Subject: Chemistry

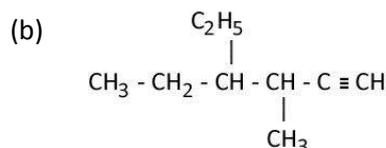
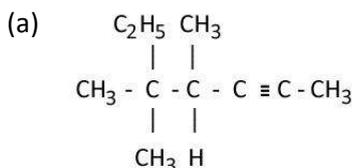
Time: 1.15 hours

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

- 1) The number of electrons in outmost shell of group 14 elements is _____.
(a) 1 (b) 2 (c) 3 (d) 4
- 2) Which of the following represents formula of borax?
(a) $\text{Na}_2\text{B}_4\text{O}_7 \cdot 4 \text{H}_2\text{O}$ (b) $\text{Na}_2\text{B}_4\text{O}_7 \cdot 10 \text{H}_2\text{O}$ (c) $\text{Na}_2\text{B}_4\text{O}_7 \cdot 7 \text{H}_2\text{O}$ (d) $\text{Na}_2\text{BO}_7 \cdot 10 \text{H}_2\text{O}$
- 3) Hex-2-ene & 2-Methylpent-2-ene exhibit _____.
(a) Chain isomerism (b) position isomerism
(c) geometrical isomerism (d) optical isomerism
- 4) Calcium carbide reacts with water to give _____.
(a) ethylene (b) ethane (c) acetylene (d) bromoethane
- 5) Hybridisation of all six carbon atoms in benzene is _____.
(a) SP (b) SP^3 (c) d SP^2 (d) SP^2

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

- 1) Write valency shell electronic configuration of Boron family.
- 2) Explain the structure of diborane.
- 3) Draw geometrical isomers for 3,4 dimethyl hex-3-ene.
- 4) Write IUPAC name of the following:



- 5) Write characteristics of aromatic compound.
- 6) State & explain Huckel rule.

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

- 1) Write a note on ozonolysis of: (a) ethylene (b) Acetylene
- 2) What is the action of following on Aluminium: (a) Air (b) Water (c) Alkali
- 3) Do the following conversions:
(a) 1, 2 dichloroethane to Ethyne (b) Ethyne to Benzene
(c) Ethene to ethyl alcohol

Q. 4) Write a note on structure, properties & uses of: (a) Diamond (b) Graphite (04)

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

Date: 17/01/2015
Class: F.Y.J.C. SCI

UNIT TEST II - JANUARY 2015
Subject: Mathematics

Max. Marks: 25
Time: 1.15 hours

- Q. 1) Select & write correct answer from given alternatives in each of the following: (04)**
- 1) For the G.P. 2, 6, 18, 54, nth term is given by _____
(a) $3 \cdot 2^{n-1}$ (b) $2 \cdot 3^{n-1}$ (c) 6^{n-1} (d) None of these
- 2) Equation of a line which passes through (2, -3) and making angle of 135° with positive direction of x-axis is given by _____
1) $x+y-1=0$ (b) $x-y+1=0$ (c) $x+y+1=0$ (d) $x-y-1=0$
- Q. 2) Solve ANY FOUR of the following: (08)**
- 1) Evaluate the following limit:
$$\lim_{x \rightarrow 5} \frac{x^2 - 9x + 20}{x^2 - 6x + 5}$$
- 2) If the following points are collinear find the value of K.
 $A \equiv (5, 0)$ $B \equiv (10, -3)$ and $C \equiv (-5, 6)$
- 3) The seventh term of A.P. is 30 and the tenth term is 21. Find the fourth term.
- 4) Find the equation of line which passes through the points (4, 3) and (3, -5).
- 5) Evaluate:
$$\lim_{x \rightarrow 0} \frac{1 - \cos 2x}{\sin^2 2x}$$
- Q. 3) Attempt ANY THREE of the following: (09)**
- 1) Insert two numbers between 3 and 24 so that resulting sequence is a G.P.
- 2) Evaluate:
$$\lim_{x \rightarrow 0} \frac{a^x + b^x + c^x - 3}{\tan x}$$
- 3) Find equation of line which passes through the (3, 4) and the sum of whose intercepts on axes is 14.
- 4) Evaluate:
$$\lim_{X \rightarrow \infty} \sqrt{x^2 + 4x + 16} - \sqrt{x^2 + 16}$$
- Q.4) Solve ANY ONE of the following: (04)**
- 1) A (2, 5) B (6, -1) and C (-4, -3) are the vertices of $\triangle ABC$. Find the equation of:
(a) Median through A (b) The Altitude through B
- 2) Find sum to n terms
 $0.3 + 0.33 + 0.333 + \dots$ up to n terms.

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

Date: 16/01/2016
 Class: F.Y.J.C. SCI

UNIT TEST II - JANUARY 2016
Subject: Mathematics

Max. Marks: 25
 Time: 1.15 hours

Q. 1) Select correct alternatives and rewrite the statement: (04)

- 1) Slope of the line passing through the points (1, -3) and (-1, -1) is _____.
 (a) 1 (b) -1 (c) 2 (d) -2
- 2) If $\vec{a} = 2\hat{i} - 3\hat{j} + \hat{k}$ and $\vec{b} = \hat{i} + 2\hat{j} - 3\hat{k}$ then $\vec{a} \cdot \vec{b} =$ _____.
 1) -7 (b) 7 (c) 5 (d) -5

Q. 2) Attempt ANY FIVE from the following: (08)

- 1) Find the value of K so that the line through (3,K) and (2, 7) is parallel to the line through (-1,4) and (0,6).
- 2) Find the equation of circle with A(2, -3) and B(-3, 5) as end points of diameter.
- 3) Find the coordinates of the focus, equation of directrix, length of Latus rectum and the end points of Latus rectum of the parabola $5y^2 = 16x$.
- 4) Show that the points A(2, -1, 4) ; B(3,2,5) ; C ≡ (5,8,7) are collinear.
- 5) Find m if \vec{a} is perpendicular to \vec{b} where $\vec{a} = m\hat{i} + 4\hat{j} - \hat{k}$ and $\vec{b} = 3\hat{i} + m\hat{j} - 2\hat{k}$

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

- 1) Find the equation of circle concentric with the circle $2x^2 + 2y^2 + 6x + 10y - 39 = 0$ and having its area 16π sq. units.
- 2) Find equation of ellipse in standard form whose major axis is 8 and eccentricity is $\frac{1}{2}$.
- 3) Find vector area and the magnitude of the vector area of parallelogram whose adjacent sides are the vectors $\vec{a} = 2\hat{i} - 3\hat{j} + \hat{k}$; $\vec{b} = \hat{i} + \hat{j} - 3\hat{k}$
- 4) Find the equation of line which make intercepts on axes whose sum is 1 and product is -6.

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

- 1) Find the coordinates of the circumcentre of triangle whose vertices are (2,-1) ; (0,0) ; (-1,3).
- 2) (a) Find projection of \vec{a} on \vec{b} where $\vec{a} = \hat{i} - \hat{j} + \hat{k}$ and $\vec{b} = \hat{i} - \hat{j} - 2\hat{k}$
 (b) Find the equation of circle whose centre is (-3,1) and passing through the point (5,2)

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Date: 00/01/2014

UNIT TEST II - JANUARY 2014

Max. Marks: 25

Class: F.Y.J.C. SCI

Subject: Physics

Time: 1.15 hours

Instructions:

- 1) All questions are compulsory.
 - 2) Use of log table is allowed.
-

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

- 1) The following is a quantity which is scalar
(a) Displacement (b) Path Length (c) Velocity (d) acceleration
- 2) The equation of maximum height of projectile is _____.
(a) $2U\sin\theta/g$ (b) $U^2\sin^2\theta/g$ (c) $U\sin\theta/g$ (d) $u^2\sin^2\theta/2g$
- 3) When two or more sound notes are produced one after the other gives pleasant effect is called as _____.
(a) musical scale (b) harmony (c) melody (d) musical interval
- 4) How many cells of 1.5 V/500 mA rating would be required in series-parallel combination to provide 1500 mA at 3V?
(a) 2 cells (b) 4 cells (c) 6 cells (d) 8 cells
- 5) The formula of velocity of Transverse wave travelling along stretch string is _____.
(a) $V = \sqrt{T/m}$ (c) $V = \sqrt{\frac{P}{\rho}}$
(b) $V = \sqrt{\frac{E}{\rho}}$ (d) $V = \sqrt{\frac{rP}{\rho}}$

Q. 2-B) Attempt ANY FIVE (10)

- 1) A train travels at a speed 50 km/hr for 0.5 hr, at 30 km/hr for next 0.26 hr and then 70 km/hr for next 0.76 hr. What is the average speed of the train/
- 2) Distinguish between Transverse wave & Longitudinal wave.
- 3) "Wave motion is a doubly periodic phenomenon", explain.
- 4) The velocity of sound in air at 27°C is 340 m/s. Calculate the velocity of sound in air at 127°C.
- 5) Find the equation of specific resistance of conductor and hence define it.
- 6) Evaluate resistance for the following colour-coded resistors:
(a) Yellow - Violet - Black - Silver (b) Green - Blue - Red - Golden
- 7) A wire has resistance of 8 Ω. If its length is made half by folding, find its resistance after the free ends is connected to each other.

Q, 3) Solve ANY TWO

(06)

- 1) Explain Ohm's law to complete circuit and find the proper formula of current.
- 2) Explain velocity time graph for particle moving with constant acceleration and show that $S = Ut + at^2$
- 3) A man standing between two parallel cliffs fires a gun. He hears two echoes one after two seconds and other after 4 seconds. What is the distance between the cliffs if the velocity of sound is 330 m/s?

Q.4) Solve ANY ONE

(04)

- 1) Explain Laplace's correction to the Newton's Formula for the velocity of sound in air.
- 2) Derive an equation of the path of projectile and hence find horizontal range of projectile.
- 3a) An electric heater takes 6A current from 220V supply line. Calculate the power of heater and electric energy consumed by it in 2 hours.
- 3b) A conductor has resistance of 15Ω at 10°C and 18Ω at 400°C . Find the temperature coefficient of resistance of the material.

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

DNYAN BHARTI SOCIETY'S
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VADKUN, DAHANU ROAD (W.RLY), DIST THANE, MAHARASHTRA - 401602.

Date: 13/01/2016
Class: F.Y.J.C. SCI

UNIT TEST II - JANUARY 2016

Subject: Physics

Max. Marks: 25
Time: 1.15 hours

Instructions:

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

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

- 1) When water vapour in air decreases, the velocity of sound _____.
(a) increases (b) decreases (c) remains constant (d) become double
- 2) The pressure due to liquid column does not depend upon _____.
(a) Height of liquid column (b) density of liquid
(c) direction of force (d) acceleration due to gravity
- 3) The symbol for thermistor is _____.
(a)  (b)  (c)  (d) 
- 4) The magnetic field of induction at a point due to an element of conductor carrying current decreases by _____.
(a) Increasing current (b) increasing length (c) decreasing distance
(d) decreasing distance of point from conductor
- 5) The temperature at which speed of sound in air becomes double its value at 0° C is _____.
(a) 546° C (c) 273° C
(b) 819° C (d) 1092° C

Q. 2) Attempt ANY FOUR (08)

- 1) Distinguish between transverse and longitudinal waves.
- 2) Define temperature coefficient of resistance of a conductor and find its equation.
- 3) State the equivalence between current carrying circular coil and magnetic dipole.
- 4) A Voltmeter is connected across a battery of EMF 12.0 V and internal resistance of 10 Ω. If the voltmeter resistance is 230 Ω, what reading will be shown by voltmeter?
- 5) The velocity of sound in gas is 498 m/s & in air is 332 m/s. What will be the ratio of wavelength of sound waves in gas to air?
- 6) A 20kg metal block is placed on a horizontal surface. The block just begins to slide, when horizontal force of 100N is applied to it. Calculate the coefficient of static friction.

Q. 3) Attempt ANY FOUR (12)

- 1) State and verify the first law of static friction.
- 2) Explain Newton's formula for velocity of sound in air and find the value of velocity at NTP.
- 3) State Biot-Savarts law and obtain an expression of magnetic induction at the centre of circular coil carrying current.
- 4) Explain Ohm's law applied to complete electrical circuit. Find the proper formula of EMF and terminal P.D.
- 5) An electric heater takes 6A current from 220V supply line. Calculate the power of heater and electric energy consumed by it in 2 hours.
- 6) A man standing between two parallel cliffs fires a gun. He hears two echos one after 2 seconds and the other after 4 seconds. What is the distance between two cliffs if the velocity of sound is 330 m/s.

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