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Reg. No. | | | | | | | |

11th Quarterly Examination - 2018

Time : 2.30 hrs. **PHYSICS** Max. Marks : 70

Instruction : 1) Check the question paper for fairness of printing if there is any lack of fairness inform the hall supervisor immediately.

2) Use Blue or Black ink to write and underlined and pencil to draw diagram.

SECTION – I

Note : (i) Answer all the questions **15 x 1 = 15**

(ii) Choose the most suitable answer from the given four alternatives and write the option code and corresponding answer.

1. Unit of Angular acceleration is.....
   a) rad s^{-1} b) rad m^{-1} c) rad s^{-2} d) rad m^2
2. Triple point of water is
   a) 273.16 k b) 237.16 c c) 273.16 c d) 0 k
3. If $\pi = 3.14$ then the value of π^2 is
   a) 9.8596 c) 9.860 c) 9.86 d) 9.9
4. Mass, temperature, electric current are.....
   a) fundamental quantities b) scalar quantities c) vector quantities d) both a and b
5. If the velocity is $\vec{v} = 2\hat{i} + t^2\hat{j} - 9\hat{k}$ then the magnitude of acceleration at t = 0.5 s is.....
   a) 1 ms^{-2} b) 2 ms^{-2} c) zero d) –1 ms^{-2}
6. A bus is moving with a speed of 10 ms^{-1} on a straight road. A scooterist wishes to overtake the bus in 100s. If the bus is at a distance of 1 km from the scooterist, with what speed shiould the scooterist chase the bus? a) 40 ms^{-1} b) 25 ms^{-1} c) 10 ms^{-1} d) 20 ms^{-1}
7. Earth moving about sun is elliptical orbit is an example for
   a) force and motion in same direction b) force and motion in different direction
   c) force and motion in opposite direction d) zero net force
8. When a car takes a sudden left turn in the curved road, passenger is pushed towards the right due to...
   a) inertia of direction b) inertia of motion c) inertia of rest d) absence of inertia
9. An object of mass m begins to move on the plane inclined at an angle θ. The coefficient of static friction of inclined surface is μ_s.The maximum static friction experienced by the mass is,
   a) mg b) μ_s mg c) μ_s mg $\sin\theta$ d) μ_s mg $\cos\theta$
10. The work done by the conservative force for a closed path is.....
    a) always negative b) zero c) always positive d) not defined
11. 1 kwh is equal to
    a) 3.6×10^4 J b) 3.6×10^5 J c) 3.6×10^6 J d) 36×10^6 J
12. Co-efficient of restitution, for an elastic collision is.....a) e = –1 b) e = 0 c) e = 1 d) e = 2
13. A couple produces
    a) pure rotation b) pure translation c) rotation and translation d) no motion
14. The moment of inertia of a Thin rod about and axis passing through the centre and perpendicular to the length is.....a) $Ml^2/3$ b) $Ml^2/12$ c) $Ml^3/12$ d) $M(l^2 + b^2)/12$

15. The centre of mass of a system of particles does not depend upon
a) position of particles b) relative distance between particles c) masses of particles
d) force acting on particle

SECTION – II

Answer any 6 question. Question No.19 is compulsory. **6 x 2 = 12**

16. What are the advantages of SI system?
17. What is fractional error?
18. Define position Vector?
19. What is the angle of projection to have a maximum range in 'kitti pull'? If one strikes kitti pull with of $98ms^{-1}$ what is the maximum range achieved?
20. What is Impulsive force?
21. State Lami's Theorem?
22. What is power? Give its dimentional formula? *CTEN*
23. What is the condition for perfect inelastic collison?
24. State the law of conservation of angular momentum.

SECTION - III

Answer any 6 questions. Question No.31 is compulsory **6 x 3 = 18**

25. Find the dimensional formula for hC/G?
26. Write the rules for determining significant figures?
27. Drive any two equations of uniformly accelerated motion by calculus method?
28. Is zero Relative velocity possible? Explain?
29. A mango is hanging from a tree, draw a free body diagram relative to this event. Find the tension acting on the mango (mass of the mango is 400g).
30. What is centripetal force? Give its formula
31. A box is pulled with a force of 25 N to produce a displacement of 15 m. If the angle between the force and displacement is 30^0, find the work done by the force?
32. What are conservative and non-conservative forces?
33. Define centre of Mass and centre of gravity?

SECTION - IV

Answer all the questions. **5 x 5 = 25**

34. a) What are the applications of dimensional analysis. Verify $S = ut + 1/2\ at^2$ by dimensional analysis. **(OR)**
b) Explain the types of equilibrium with suitable examples.
35. a) Explain triangulation method and RADAR method to measure larger distances. **(OR)**
b) Arrive at an expression for velocity of objects in one dimensional elastic collision.
36. a) Explain in detail the triangle law of vector addition. **(OR)**
b) State and prove parallel axis theorem.
37. a) Prove that the path followed by the projectile under an angular projection is a parabola. **(OR)**
b) Compare static friction with kinetic friction.
38. a) State Newton;'s laws of motion and explain briefly. **(OR)**
b) State and explain work-energy principle.

12th Quarterly Examination - 2018

Time : 2.30 hrs. **CHEMISTRY** Max. Marks : 70

Instructions : 1) Check the question paper for fairness of printing. If there is any lack of fairness, inform the Hall Supervisor immediately. 2) Use Blue or Black ink to write and underline and pencil to draw diagrams.

SECTION - I

15 x 1 = 15

Note : i) Answer all the questions
ii) Choose the suitable answer from the given four alternatives and write the option code and the corresponding answer.

1. .....form oxocations a) Lanthanides b) actinides c) noble gases d) alkali metals
2. In which of the following methods coagulation does not occur?
   a) froth floatatino b) heating c) cooling d) centrifuging
3. An optically active compound which gives blue colour in Victor Meyer test is
   a) ethanol b) 2-butanol c) acetone d) iso propyl alcohol
4. The compound used as smoke screen is a) PCl_3 b) PCl_5 c) PH_3 d) H_3PO_3
5. The number of unit cells shared by the atoms present in edge centre, body centre and corners of a cubic system is respectively a) 1, 4, 8 b) 1, 2, 4 c) 4, 8, 1 d) 4, 1, 8
6. In the oxidation of glycerol, match the List-I and List-II correctly by using the code given below.

List - I (Oxidant)	List-II (Product)
A) $FeSO_4 + H_2O_2$	1. Oxalic acid
B) Bismuth nitrate	2. Glyceric acid
C) Dil. HNO_3	3. Mesoxalic acid
D) Acidified $KMnO_4$	4. Glycerose

Codes :

	(A)	(B)	(C)	(D)		(A)	(B)	(C)	(D)		(A)	(B)	(C)	(D)		(A)	(B)	(C)	(D)
a)	4	3	2	1	b)	1	2	3	4	c)	1	3	2	4	d)	4	2	3	1

7. The bond order of oxygen molecule is a) 2.5 b) 1 c) 2 d) 3
8. Assertion : In the decomposition of SO_3, entropy increases.
   Reason : Number of molecules of the products decreases.
   a) Assertion is wrong but Reason are true b) Both Assertion and Reason are true
   c) Assertion is true but Reason is wrong d) Both Assertion and Reason are wrong.
9. When ether is exposed to air for some time an explosive substance produced is
   a) peroxide b) oxide c) superoxide d) TNT
10. Which electronic configuration of an element has the maximum electron affinity value?
    a) $2s^2\ 2p^5$ b) $3s^2\ 3p^5$ c) $4s^2\ 4p^5$ d) $3s^2\ 3p^6$
11. Which of the following statements is/are correct?
    a) Among the bivalent metal ions of d block elements, Mn^{2+} has maximum magnetic moment.
    b) All cuprous salts are coloured c) Alkaline silver nitrate is known as Tollen's reagent
    d) Chromium is used in Galvanisation a) 1, 3 b) 1, 2, 3 c) 2, 3 d) 1 alone
12. In the reversible reaction $2HI \rightleftharpoons H_{2(g)} + I_{2(g)}$ K_p is
    a) greater than K_c b) less than K_c c) equal to K_c d) zero
13. The compound that does not undergo Cannizzaro reaction is
    a) trimethyl acetaldehyde b) benzaldehyde c) acetaldehyde d) formaldehyde
14. The half life period of a first order reaction is 10 minutes. Then its rate constant is
    a) $69.3 \times 10^{-1}\ min^{-1}$ b) $6.932 \times 10^{-2}\ min^{-1}$ c) $0.693 \times 10^{-1}\ min^{-1}$ d) $6.932 \times 10^{2}\ min^{-1}$
15. The acid that cannot be prepared by Grignard reagent is
    a) acetic acid b) formic acid c) butyric acid d) benzoic acid

SECTION - II

Answer any six questions and question number 18 is compulsory. **6 x 2 = 12**

16. What are molecular orbitals?
17. Comparing $La(OH)_3$ and $Lu(OH)_3$, which is more basic?
18. Fluorine does not form polyhalides. Why?
19. Write the types of most common point defects in crystals with an example.
20. For a chemical reaction, the values of ΔH and ΔS at 300K are -10Kcal mol^{-1} and 20 cal deg^{-1} mol^{-1} respectively. Calculate the value of ΔG of the reaction.
21. State Le-chatlier's principle.
22. Distinguish racemic form and meso form.
23. How is terylene prepared?
24. Anisole does not give iodo benzene and methanol with HI. Why?

SECTION - III

Answer any six questions and question number 27 is compulsory. **6 x 3 = 18**

25. Compare the ionization energies of nitrogen and oxygen.
26. Write any three salient features of oxidation states of transition elements.
27. Explain the effects of pressure on the following equilibria

    i) $A_{(g)} + 2B_{(g)} \rightleftharpoons C_{(g)} + D_{(g)}$ ii) $L_{(g)} + M_{(g)} \rightleftharpoons N_{(g)} + O_{(g)}$

28. Write the uses of acitinides.
29. The rate constant for the first order reaction is 1.54×10^{-3} sec^{-1}. Calculate its half llife period.
30. Mention the type of catalysts and the name of the catalyst used in the following reactions.
    1. Decomposition of potassium chlorate. 2. Oxidation of oxalic acid using acidified potassium permanganate. 3. Oxidation of sodium arsenite.
31. Write the tests for identifying phenol.
32. Write Knoevenagal reaction.
33. How will you convert methyl acetate into ethyl acetate?

SECTION - IV

Answer all the questions. **5 x 5 = 25**

34. i) Write the conditions for effective hydrogen bonding. 2
    ii) Write any three uses of neon 3

    (OR)

    How zinc is extracted from its chief ore? 5
35. i) What is lanthanide contraction? 2
    ii) Write the advantages and disadvantages of Mulliken's scale 3

    (OR)

    i) What is vitreous state? 2
    ii) The equilibrium constant Kc for $A_{(g)} \rightleftharpoons B_{(g)}$ is 2.5×10^{-2}. The rate constant of the forward rection is 0.05 sec^{-1}. Calculate the rate constant of the reverse reaction. 5
36. State various statements of the second law of Thermodynamics. 5

    (OR) i) What is meant by activation energy?
    ii) Define adsorption.
37. i) Why are inter halogens more reactive than halogens? 2
    ii) Write the reaction of glycol with conc. sulphuric acid. 3

    (OR)

    i) Trans isomer is more stable than cis isomer. Give reason 2
    ii) What happens when anisole is nitrated? 3
38. i) Chloroacetic acid is stronger than acetic acid. Why? 2
    ii) What happens when benzophenone is fused with KOH? **(OR)**

    An organic compound (A) of moelcular formula C_7H_6O on treatment with lead nitrate gives a compound (B) of molecular formula C_7H_6O. (B) on chlorination in presence of $FeCl_3$ forms compound (C). Identify A, B and C, write the reactions. 5