Write the following information in the first page of Answer Script before starting answer

ODD SEMESTER EXAMINATION: 2020-21

Exam ID Number_____

Course_____ Semester_____

Paper Code _____Paper Title _____

Type of Exam: _____ (Regular/Back/Improvement)

Important Instruction for students:

1. Student should write objective and descriptive answer on plain white paper.
2. Give page number in each page starting from 1st page.
3. After completion of examination, Scan all pages, convert into a single PDF, rename the file with Class Roll No. **(2019MBA15)** and upload to the Google classroom as attachment.
4. Exam timing from 10am – 1pm (for morning shift).
5. Question Paper will be uploaded before 10 mins from the schedule time.
6. Additional 20 mins time will be given for scanning and uploading the single PDF file.
7. Student will be marked as ABSENT if failed to upload the PDF answer script due to any reason.

B.Sc. CHEMISTRY
FIFTH SEMESTER
INDUSTRIAL CHEMICALS & ENVIRONMENT
BSC-507 B

Duration : 3 hrs. **Full Marks : 70**

(PART-A : Objective)

Time : 20 min. **Marks : 20**

Choose the correct answer from the following: ***1X20=20***

1. Which one of the following is not a Secondary Energy Resource?
a. Petrol **b.** Electrical energy from combustion of coal
c. Hydrogen from electrolysis of water **d.** Natural gas

2. Identify the non renewable Energy Resource from the options given below:
a. Geothermal energy **b.** Solar energy
c. Petroleum **d.** None of the above

3. The Direct Solar Energy is:
a. Solar energy **b.** Photovoltic cell
c. Solar energy for driving vehicles **d.** None of the above

4. Failure mechanism of controlling neutron flux is:
a. Loss of coolant **b.** Controlled Fission
c. Reactivity Excursion **d.** None of the above

5. Natural source of radioactive pollution is:
a. Cosmic Radiation **b.** Nuclear reactors for power generation
c. Use of radioactive isotopes in agriculture **d.** None of the above

6. In the Troposphere the temperature ……with height.
a. Decreases **b.** Increases
c. No change **d.** First increases then decreases.

7. The formula of Peroxyacetylnitrate is:
a. CH_3COONO_2 **b.** $CH_3CH_2COOONO_2$
c. CH_3CONO_2 **d.** $CH_3COOONO_2$

8. The four Greenhouse Gases are:
a. $H_2O(g)$, CO_2, CH_4, NO **b.** $H_2O(g)$, CO_2, CH_4, Cl_2
c. CO_2, CH_4, O_2, N_2 **d.** $H_2O(g)$, CO_2, CH_4, O_2

9. The Key events of Carbon cycle are the complementary reactions of photosynthesis and …….
a. Hydrolysis **b.** Ammonolysis
c. Ozonolysis **d.** Respiration

10. Acetone and Alcohols are considered as Hazardous because it is:
a. Flammable **b.** Corrosive
c. Explosive **d.** Toxic

11. The best method of Sterilization of drinking water is:

a. Chlorination
b. Ion-exchange
c. Ozonisation
d. Soda lime treatment

12. The BOD determination requires a time of ……days.

a. Two days
b. Four days
c. 7 days
d. 5 days

13. The application of oleum is/are:

a. As an intermediate for transportation
b. Sulfuric acid production
c. Explosives manufacture
d. All of the above

14. Which of the following is correct for dinitrogen?

a. Diamagnetic, hexagonal, Daniel Rutherford (1772)
b. Diamagnetic, Cubic, Daniel Rutherford (1790)
c. Paramagnetic, hexagonal, Jean Antoine chaptal(1771)
d. Paramagnetic, Cubic, Jean Antoine chaptal(1775)

15. Which of the following is correct for Galena?

a. PbS, Triclinic, $a=b=c$, $\alpha=\beta=\gamma=90^0$
b. CuS, Cubic, $a=b=c$, $\alpha=\beta=\gamma=90^0$
c. PbS, Cubic, $a=b=c$, $\alpha=\beta=\gamma=90^0$
d. ZnS, Monoclinic, $a=b=c$, $\alpha=\beta=\gamma=90^0$

16. Which of the following is correct for other names of nitric acid?

a. Aqua fortis, Spirit of Niter, Eau Forte, Hydrogen sulphate, Acidium nitricome
b. Aqua fortis, Spirit of Niter, Eau Forte, Hydrogen nitrate, Acidium nitricum
c. Aqua fortis, Spirit of Nitrogen, Eau Forte, Hydrogen chloride, Acidium nitricome
d. Aqua comples, Spirit of Niter, Eau Forte, Hydrogen nitrite, Acidium nitricome

17. Which of the following is/ are chemical formula of poisonous gas?

a. $COCl_2$
b. $C_{10}H_5ClN_2$
c. $C_4H_8Cl_2S$
d. All of the above

18. Which of the following is correct for chlorine?

a. Diamagnetic, orthorhombic, Pauling scale = 3.16
b. Diamagnetic, cubic, Pauling scale = 2.25
c. Paramagnetic, orthorhombic, Pauling scale = 1.16
d. Paramagnetic, triclinic, Pauling scale = 4.16

19. Which of the following is not Green Chemistry principle?

a. Prevention
b. Renewable feedstocks
c. Energy efficiency
d. Non degradable design

20. Which of the following are Bio catalyst?

a. Zymase, Invertase, Maltase, Divanadium pentoxide
b. Zymase, Invertase, Maltase, Urease, Platinum, lactobacilii
c. Zymase, Invertase, Maltase, Urease, lactobacilii, Pepsin
d. Zymase, Invertase,Nickel-Iron Maltase, Urease, lactobacilii

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(PART-B : Descriptive)

Time : 2 hrs. 40 min. **Marks : 50**

[Answer question no.1 & any four (4) from the rest]

1.	**a.** What are the different ways of storing solar energy? How it is achieved through photovoltaic cell?	2+1=3
	b. What is active solar heating system? How does it differ from passive one?	2
	c. Mention the limitations of wind power.	2
	d. Define tidal power. How is it harnessed? What are the adverse environmental effects of tidal power plants?	1+1+1 =3
2.	**a.** What are the causes of Chernobyl Nuclear Reactor Disaster of 1986?	3
	b. How a nuclear reactor catastrophy can be avoided?	3
	c. What are the strategies adopted for disposal of high level nuclear wastes?	4
3.	Explain in detail with flow sheet the chemistry of Carbon Cycle.	10
4.	Explain what the pollution of water are and what its remedy are.	10
5.	Explain the causes of Ozone layer depletion and what its remedy are.	10
6.	**a.** Explain Biocatalysis for Green Chemistry and Chemical Development.	5×2=10
	b. Discuss the examples of Green Chemistry.	
7.	**a.** Mention the large scale production, uses and storage of argon and neon.	5×2=10
	b. Discuss the preparation, properties, chemical reaction and uses of Chlorine and sulphur dioxide.	
8.	**a.** Explain the refining process of nickel and zirconium. Write the two ores name with chemical formula of three metals Iron(Fe), Zinc (Zn) and Copper (Cu).	5×2=10
	b. Discuss the manufacturing, chemical reaction, properties and application of the following:	
	(i) H_2SO_4	
	(ii) HNO_3	
	(iii) $KMnO_4$	

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