

B.Sc. Semester - 6 (CBCS) Examination

March/April -2019

INORGANIC AND INDUSTRIAL CHEMISTRY(CORE)

Time: 2:30 Hours

Marks: 70

Instructions:

1. All questions are compulsory.
 2. Figures to the right indicate marks.
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Q. 1 (A) Answer the following question. (4)

- (1) Explain Hund's rule for determination of ground state spectral term.

Q.1 (B) Answer the following questions. (Any two) (10)

- (1) Derive spectral terms for p^2 electronic configuration and decide ground state spectral term.
- (2) Calculate the microstates for d^2 electronic configuration.
- (3) Explain Hole pegen diagram for d^1 electronic configuration.

Q. 2 (A) Answer the following question. (4)

- (1) Draw the splitting diagram of d-orbital in various crystal fields.

Q. 2 (B) Answer the following questions. (Any two) (10)

- (1) Discuss Jahn-Teller theorem.
- (2) Explain splitting of d-orbital in square planer complex with example.
- (3) Discuss the absorption spectra of $[\text{Ti}(\text{H}_2\text{O})_6]\text{Cl}_3$.

Q. 3 (A) Answer the following question. (4)

- (1) Explain the effect of temperature on magnetic susceptibility of the various substances.

Q. 3 (B) Answer the following questions. (Any two) (10)

- (1) Discuss Guoy's balance method.
- (2) Explain the dry process for hydrogenation of oil.
- (3) Discuss (I) Saponification value (II) Iodine value

Q. 4 (A) Answer the following question. (4)

- (1) Write note on Alfol process.

Q. 4 (B) Answer the following questions. (Any two) (10)

- (1) Discuss Batch process for manufacturing of soap.
- (2) Give the classification of surface active agents.
- (3) Explain the raw materials used for manufacturing of soap.

Q. 5 (A) Answer the following question. (4)

- (1) Differentiate Biological oxygen demand (BOD) and chemically oxygen demand (COD).

Q. 5 (B) Answer the following questions. (Any two) (10)

- (1) Discuss Green House Effect.
- (2) Discuss the source of water pollution.
- (3) Write note on Acid rain.
