

(6 pages)

Reg. No. :

Code No. : 40300 E Sub. Code : JMCH 5 C/
SECH 5 C

B.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2019.

Fifth Semester

Chemistry – Main

Major Elective – II – ANALYTICAL CHEMISTRY

(For those who joined in July 2016 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

1. The mean value for 12.20, 12.04, 12.24 and 12.28 is
(a) 12.23 (b) 12.29
(c) 12.09 (d) 12.06
2. The number of significant figures in the value 12.205 is
(a) 6 (b) 5
(c) 3 (d) 2

3. Hardness of water is expressed in
(a) 10^3 (b) PPM
(c) TDS (d) NTU
4. Which one of the following is not a water quality standard?
(a) COD (b) BOD
(c) TDS (d) NTU
5. Which one of the following is not a gaseous fuel?
(a) LPG (b) CNG
(c) Water gas (d) NCV
6. Abel's apparatus is used for the determination of
(a) Flash point
(b) Aniline point
(c) Octane number
(d) Knocking
7. According to Faraday's Law
(a) $W \propto Q$ (b) $W = ZQ$
(c) $W = \frac{MQ}{NF}$ (d) All these

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8. DME is used in
(a) Coulometry (b) Polarography
(c) Redox titration (d) Amperometry
9. The colour of $[\text{Fe}(\text{SCN})_6]^{-3}$ is
(a) blue (b) red
(c) pink (d) violet
10. The expansion of DTA is
(a) differential thermal analysis
(b) direct thermal analysis
(c) diode thermal analysis
(d) Differential titration analysis

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Answer should not exceed 250 words.

11. (a) Give the difference between accuracy and precision.
Or
(b) Define mean, median and mode with examples.

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12. (a) Give any four chemical characterisation of water.

Or

- (b) Give short note on bacteriological examination of water.

13. (a) Define flash point and octane number.

Or

- (b) What are the qualities of a good fuel?

14. (a) What are the applications of coulometric titrations?

Or

- (b) Discuss the principle of electro gravimetry.

15. (a) Compare nephelometry and turbidimetry.

Or

- (b) What are the advantage of spectro photometer over ordinary colorimeter?

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[P.T.O.]



PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Answer should not exceed 600 words.

16. (a) What are the different type of errors explain in details?

Or

- (b) Write notes on

(i) Significant figures

(ii) Standard deviation

17. (a) What is BOD? How will you determine it?

Or

- (b) Write notes on sampling and preservation of water samples.

18. (a) How will you determine the moisture content and ash content of coal?

Or

- (b) Write notes on water gas and produces gas.

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19. (a) What are the important advantages of amperometric titration?

Or

- (b) Discusses the principle and working of polarograph.

20. (a) Write notes on TGA and DTA thermograms of calcium oxalate mono hydrate.

Or

- (b) How can you determine iron and nickel using spectrophotometry?
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