

Seat No. _____

Enrolment No. _____

THE CHARUTAR VIDYA MANDAL UNIVERSITY
SURFACE COATING TECHNOLOGY – SEMESTER IV
April 2022 (REGULAR) EXAMINATION

Course Code(s): 101470402

Course Title: Corrosion Technology & Heavy Duty Protective Coating

Total Printed Pages : 02

Date: 12/04/2022

Time: 01.30 PM to 03.30 PM

Maximum Marks: 60

Instructions:

- Attempt all questions.
- Numbers to the right indicate full marks for each question.
- Make suitable assumptions wherever necessary.

- Q. 1** **Answer the following MCQ's** **(12)**
1. Which of the following adsorbed layer is responsible for passivation of iron?
a) $\text{Fe}(\text{OH})_2$ b) $\text{Fe}(\text{OH})$ c) Fe_2O_3 d) All
 2. Which of the following factors can affect the corrosion?
a) Temperature b) pH c) Humidity d) All
 3. one mill = _____ part of inch.
a) 1/1000 b) 100 c) 1000 d) None
 4. Which of the following can be used for dehumidification?
a) Silica gel b) Na_2SO_3 c) CO_2 d) H_2O
 5. When Zn & Fe are electrically connected, which one gets corroded?
a) Zn b) Fe c) Both at equal rate d) Can't be predicted
 6. Which is/are commonly encountered industrial pollutants?
a) SO_x b) NO_x c) Both a & b d) None
 7. Zn gives corrosion protection by _____.
a) Sacrificial mechanism b) Barrier effect c) Inhibitive effect d) None
 8. Which of the following is most suitable biocide for antifouling paint?
a) CuO b) CuCl_2 c) Cu_2O d) $\text{Cu}(\text{OH})_2$
 9. $E^\circ_{\text{Ni}^{+2}/\text{Ni}} = -0.25\text{V}$, $E^\circ_{\text{Pb}^{+2}/\text{Pb}} = -0.13\text{V}$, $E^\circ_{\text{cell}} =$ _____.
a) -0.12V b) $+0.12\text{V}$ c) -0.38V d) $+0.38\text{V}$
 10. Which is following technique is used to protect pipeline against corrosion?
a) Use of Sacrificial anode b) ICCP c) Both a & b d) None
 11. Which of the following is not a unit to measure corrosion?
a) $\text{mg}/\text{dm}^2/\text{day}$ (mdd) b) inch/year (ipy) c) milsyear (mpy) d) $\text{m}^2/\text{litre}/\text{day}$ (mld)
 12. When a iron is plated with zinc, _____.
a) Iron will corrode first b) Zinc will corrode first
c) Both will corrode at equal rate d) Nothing can be predicted

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THE CHARUTAR VIDYAMANDAL UNIVERSITY
M.Sc. SURFACE COATING TECHNOLOGY – SEMESTER IV
April 2022 (REGULAR) EXAMINATION

Course Code(s): 101470403

Course Title: TECHNOLOGY OF CONSTRUCTION CHEMICALS

Total Printed Pages : 02

Date: 13/04/2022

Time: 01.30 PM to 03.30 PM

Maximum Marks: 60

Instructions:

- Attempt all questions.
- Numbers to the right indicate full marks for each question.
- Make suitable assumptions wherever necessary.

Q. 1 Answer the following MCQ's

(12)

1. Hydration of cement is chemical reaction of cement with _____
a) Base b) Acid c) Salt and Acid d) Water
2. High strength concrete is defined purely on the basis of _____
a) Tensile strength b) Compressive strength
c) Good Aggregates d) Poor Aggregates
3. What are Superplasticizers?
a) Which reduces water for workability
b) Which oxidizes water for workability
c) Which decreases workability at the same water content
d) Which adds water for workability
4. The term _____ in the buildings is used to mean the coming out of water from components like walls and floors of the buildings.
a) Damp proofing b) Termite proofing
c) Water proofing d) Dampness
5. Crack bridging test according to EN 14891 is performed at _____
a) @ +23°C, @ -5°C and @ -20°C b) @ +23°C, @ +5°C and @ -20°C
c) @ -23°C, @ -5°C and @ -20°C d) @ -23°C, @ -5°C and @ +20°C
6. Incozol® 4 is bis-oxazolidine latent hardener is used in _____ Waterproofing membrane.
a) 1K Aromatic Bituminous PU b) 2K Cementitious c) 1K Cementitious d) None of these
7. Which of the following ratio is also known as water-cement ratio?
a) Weight of water to the weight of aggregates
b) Density of cement to the Density of cement
c) Weight of water to the weight of cement
d) Volume of cement to the volume of cement
8. Adhesion on Concrete is being done by _____ test.
a) Dolly b) Peel c) Crosshatch d) Scratch

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THE CHARUTAR VIDYA MANDAL UNIVERSITY
M.Sc. Surface Coating Technology – SEMESTER 4
APRIL (REGULAR) 2022 EXAMINATION

Course Title: Environmental Management

Course Code: 101470407

Total Printed Pages: 02

Date: 14/04/2022

Time: 01:30 pm to 03:30 pm

Maximum Marks: 60

Instructions:

- Attempt all questions.
- Numbers to the right indicate full marks for each question.
- Make suitable assumptions wherever necessary.

- Q. 1** Answer the following multiple-choice questions. **(12)**
- (1) Green chemists reduce risk by _____.
a) Reducing the hazard inherent in a chemical product or process
b) Minimizing the use of all chemicals
c) Inventing technologies that will clean up toxic sites
d) Developing recycled products
- (2) The first listed of the 12 Principles of Green Chemistry is
a) Prevent waste b) Catalysis c) Atom economy d) Benign solvents
- (3) The term missing in Risk = Hazard x _____
a) Exposure b) Cancer c) Benign d) Reactivity
- (4) Biochemical Oxygen Demand measures:
a) Industrial pollution
b) Air pollution
c) Pollution capacity of effects
d) Dissolved O₂ needed by microbes to decompose organic waste.
- (5) Acid rain caused due to _____
a) Ozone and dust b) CO₂ and CO c) SO₃ and CO d) SO₂ and NO₂
- (6) _____ is an aerobic method of decomposing organic solid wastes.
a) Landfilling b) Composting c) Incineration d) None of the above
- (7) In the case where carbon dioxide is used as a carbon-source building block, if the CO₂ were made from burning fossil fuels it would be considered as _____.
a) depleting b) renewable c) both a & b d) none of these
- (8) Which of the following reaction consider as 100 % atom economical?
a) Addition b) Substitution c) Elimination d) None of these
- (9) The first option for solid waste management is _____.
a) Reuse b) Reduce c) Recycle d) None of the above

- (10) ISO stands for _____
 a) International Organization for Standardization b) Indian Standard Organization
 c) Indian Specification Organization d) None of the above
- (11) ISO 14000 standard is related with _____
 a) Environmental management systems b) Automotive quality standards
 c) Eliminating poor quality d) Customer satisfaction
- (12) The total set of carbon emissions caused by an individual is called _____
 a) Carbon cycle b) Carbon handprint c) Carbon footprint d) Carbon summary

Q. 2 Attempt **Any eight** of the following. **(16)**

- (1) Define Green Chemistry. Write its benefits.
- (2) Enlist chemical reaction and identify which one is more atom economical and why?
- (3) Enlist tools of Green Chemistry.
- (4) Define air pollution and enlist major air pollutants.
- (5) List the various air pollution control methods.
- (6) Explain why 'Waste reuse and recycling are the preferred options' when managing solid waste.
- (7) What is a renewable and depleting feedstock? Give its example.
- (8) How atom economy is different from yield?
- (9) Define EMS according to ISO 14001 standards.
- (10) Enlist Driver of EMS.

Q. 3 Write a note on principles of Green Chemistry. **(08)**

OR

Q. 3 Write a note on Green Solvent. **(08)**

Q. 4 Write a note on solid waste management methods to reduce waste. **(08)**

OR

Q. 4 What are BOD and COD? How it is determined? **(08)**

Q. 5 Explain in detail about waste minimization methods for paint manufacturing industries. **(08)**

OR

Q. 5 Explain in detail real-time, in-process analysis beneficial to green chemistry. **(08)**

Q. 6 Explain in brief tools of EMS **(08)**

OR

Q. 6 Write a note on Carbon foot print. **(08)**
