

K1 Level

1. Who coined the term green Chemistry?
a) Trost **b) Paul T. Anastas** c) John C. Warner d) Berzelius
2. 'E' Factor is.....
a) Mass ratio of waste to desired product
b) Ratio of molecular weight of all substances produced in stoichiometric equation.
c) Percentage of product of all the materials used in its preparation.
d) Total mass used in a process divided by the mass of product.
3. Green chemistry eliminates waste.....
a) At the end of the process
b) At source
c) Somewhere in middle of the process
d) Nothing to do with waste remediation
4. Which one is not the advantage of zeolite catalysed Friedel-Crafts acylation?
a) No solvent is required
b) 0.035 Kg aqueous effluent per Kg instead of 4.5 kg aqueous effluent per Kg
c) greater than 95% yield of higher purity instead of 85-95% yield in traditional method
d) Hydrolysis of products and phase separation is necessary
5. Application of *de novo* fermentation to produce chemicals directly from biomass is called.....
a) Red biotechnology
b) Green biotechnology
c) White biotechnology
d) Refining
6. "Zeolite" is the broad term used to describe a family of minerals called.....
a) Tri silicates **b) Tectosilicates** c) Tetrasilicates d) Pentasilicates
7. Zeolites can be custom made by manipulating the structure by change in
a) Silica-alumina ratio
b) Pore Size
c) Density
d) All the above
8. Which will not be objective of Green Chemistry group working in the chemical industry?
a) Develop environment acceptable routes to important organic products
b) Design new environment friendly materials and materials based on renewable resources
c) Generate waste through increased reagent and solvent efficiency
d) Apply innovative catalyst technology to established industrial processes

9. "Ideal synthesis" should be.....
- a) Atom efficient
 - b) Safe, one step
 - c) Involving no wasted reagents environmentally acceptable
 - d) All the above are correct**
10. Which one is not a green solvent?
- a) Liquid CO₂(super critical CO₂)
 - b) Liquid ammonia**
 - c) Ionic liquids
 - d) Water
11. Which of the following is not an example of nanoscience in nature?
- (a)Hydrophobic surface of a lotus plant
 - (b)Hydrophylic surface of a pitcher plant
 - (c)Sticky pads on the bottom of an ant's foot
 - (d)Gold that can stretch to form flexible electronics**
12. Fullerene or bucky ball is made up of ____ carbon atoms.
- a. 100 b. 20 c. 75 d. **60**
13. Atoms, ions and molecules after impinging on the growth surface assemble into crystal structure one after another. This approach is called
- a. Bottom up** b. Top down c. Rearrangement d. addition
14. The two important properties of nanosubstances are...
- [A] pressure and friction [B] **sticking and friction**
[C] sticking and temperature [D] temperature and friction
15. Which ratio decides the efficiency of nanosubstances?
- [A] Weight/volume [B] **Surface area/volume** [C] Volume/weight [D] Pressure/volume
16. Which of the following is the type of software that has self-replicating software that causes damage to files and system?
- A) Viruses B) Trojan horses C) Bots **D) Worms**

17. McAfee is an example of

- A. Photo Editing Software
- B. Quick Heal
- C. Virus
- D. **Antivirus**

18. Which of the following is known as Malicious software?

- A. illegalware
- B. badware
- C. **malware**
- D. software

19. To protect a computer from virus, you should install ----- in your computer.

- A. backup wizard
- B. disk cleanup
- C. **antivirus**
- D. disk defragmenter

5. VIRUS stands for

- A. Very Intelligent Result Until Source
- B. Very Interchanged Resource Under Search
- C. Vital Information Resource Under Siege
- D. Viral Important Record User Searched

20. Which of the following is not an antivirus software?

- A. AVG
- B. Avast
- C. **Code Red**
- D. McAfee

7. Software designed to disrupt computer operation, gather sensitive information, or gain unauthorized access to computer systems

- A. Malware
- B. Moleculewar
- C. Malisoft
- D. Malairasoft

21. Which of the following is/are threats for electronic payment systems?

- A. Computer worms
- B. Computer virus
- C. Trojan horse
- D. **All of the above**

22. Key logger is a

- A. Firmware
- B. Antivirus
- C. Spyware
- D. **All of the above**

10. To protect yourself from computer hacker, you should turn on a

- A. Script
- B. Firewall
- C. VLC
- D. **Antivirus**

23. Firewalls are used to protect against -----

- A. data driven attacks
- B. fire attacks
- C. virus attacks
- D. **unauthorized access**

12. Code red is a(n) -----

- A. **Word Processing Software**
- B. Antivirus
- C. Virus
- D. Photo Editing Software

24. ----- software are programs that are installed onto your computer and can scan and remove known viruses which you may have contracted.

- A. Firmware
- B. Adware
- C. Keylogger
- D. **Antivirus**

25. Which of the following describes programs that can run independently travel from system to system and disrupt computer communication?

- A. Viruses
- B. Trojans
- C. **Droppers**
- D. Worm

26. A ----- is a computer program that can replicate itself and spread from one computer to another.

- A. Antivirus
- B. PenDrive
- C. Mouse
- D. **Computer Virus**

16. Authentication is

- A. modification
- B. insertion
- C. hard to assure identity of user on a remote system
- D. none of the above

27. A ----- is a computer program that can replicate itself and spread from one computer to another.

- A) PenDrive
- B) **Computer Virus**
- C) Antivirus
- D) Mouse

28. ----- are attempts by individuals to obtain confidential information from you to falsifying their identity.

- A. Computer viruses
- B. **Phishing scams**
- C. Phishing trips
- D. Spyware scams

29. ----- are often delivered to a PC through an email attachment and are often designed to do harm.

- A. Spam
- B. Email
- C. Portals
- D. **Virus**

20. The altering of data so that it is not usable unless the changes are undone is

A. ergonomics

B. compression

C. biometrics

D. encryption

21. When a logic bomb is activated by a time related event, it is known as -----

A. virus

B. trojan horse

C. time related bomb sequence

D. time bomb

30. A ----- is a computer program that can invade computer and perform a variety of functions ranging from annoying(e.g. popping up messages as a joke) to dangerous (e.g. deleting files or destroying your hard disk).

A. Ms Word

B. Ms Access

C. Antivirus

D. **Computer Virus**

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33. Which of the following virus overtake computer system, when it boots and destroy information?

A. **Stealth virus**

B. Trojan

C. Boot infectors

D. System infectors

34. To protect yourself from computer hacker, you should turn on a

A. **Firewall**

B. Script

C. Antivirus

D. VLC

28. Primary databases of three-dimensional structures of biological molecules, included:

A. PDB

B. SCOP

C. EMBL

D. Both A and B

29. Levels between CPU and main memory were given a name of

A. Hit time

B. Miss rate

C. Locality in time

D. Cache

30. Allowing processor for continuing execution of instructions, that access data-cache while having cache miss, is known as

A. Nonblocking cache

B. Blocking cache

C. Cache buffer

D. None of above

31. A queue holding data while data are waiting to be written in memory, is known as

- A. Read buffer
- B. Queue buffer
- C. Write buffer
- D. Data buffer

32. Spatial locality, is also known as

- A. Temporal locality
- B. Locality in space
- C. Locality in time
- D. Spectral Locality

33. Main memory of a computer can act as a 'cache' for secondary memory, usually implemented by magnetic disks, technique is called

- A. Virtual memory
- B. Main memory
- C. Cache
- D. Buffer

34. Principle of locality that was used; implementing memory of computer as

- A. Locality in time
- B. Locality in space
- C. Memory hierarchy
- D. Temporal locality

35. Address location in main memory, is referred to as

- A. Logical address
- B. Physical address**
- C. Static address
- D. Block associative

36. An asymmetric-key (or public-key) cipher uses

- A. 1 Key
- B. 2 Key**
- C. 3 Key
- D. 4 Key

37. We use Cryptography term to transforming messages to make them secure and immune to

- A. Change
- B. Idle
- C. Attacks**
- D. Defend

38. Substitutional ciphers are

- A. Monoalphabetic
- B. Semi alphabetic
- C. polyalphabetic
- D. both a and c

39. DES stands for

- A. Data Encryption Standard
- B. Data Encryption Subscription
- C. Data Encryption Solutions
- D. Data Encryption Slots

40. In Cryptography, original message, before being transformed, is called

- A. Simple Text
- B. Plain Text
- C. Empty Text
- D. Filled Text

41. Original message, before being transformed, is

- A. Cipher text
- B. plaintext
- C. decryption
- D. None

38. Data Encryption Standard (DES), was designed by

- A. Intel
- B. IBM**
- C. HP
- D. Sony

43. Why would a hacker use a proxy server?

- A. To create a stronger connection with the target.
- B. To create a ghost server on the network.
- C. To obtain a remote access connection.
- D. To hide malicious activity on the network.

44. The first phase of hacking an IT system is compromise of which foundation of security?

- A. Availability
- B. Confidentiality
- C. Integrity
- D. Authentication

39. Trademark can be used as domain name

- (a) **Yes**
- (b) No
- (c) Yes in some cases
- (d) None of the above

40. Geographical Indication is

- (a) Private right
- (b) Community right
- (c) Intellectual property right
- (d) **both (b) and (c)**

41. Certification mark can be registered in

- (a) **Trademark Registry**
- (b) Certification Board

(c) Quality Control Board

(d) MHRD

48. Which of the following statements best describes a white-hat hacker?

- A. Security professional
- B. Former black hat
- C. Former grey hat
- D. Malicious hacker

49. What type of ethical hack tests access to the physical infrastructure?

- A. Internal network
- B. Remote network
- C. External network
- D. Physical access

K2 Level

1. What is the need of green chemistry?
2. Define atom efficiency.
3. Define atom economy.
4. Why water is called universal solvent?-
5. Give an example for solvent free reaction.
6. Write an example for phase transfer catalyst.
7. Write an example for greener reaction.
8. What is atom economy?
9. What is the criteria for selection of an appropriate solvent in green chemistry
10. What is meant by an ionic liquid?

11. Define nano clusters.
12. What is meant by a nano rod
13. What is the principle of SEM
14. Define nanoscience.
15. What is plasma arching?
16. Outline TEM.
17. Write the principle of ESCA
18. Deduce sol-gel synthesis.
19. Outline AFM
20. Define chemical vapour deposition
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22. Software designed to disrupt computer operation, gather sensitive information, or gain unauthorized access to computer systems
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42. Which of the following statements best describes a white-hat hacker?
43. What type of ethical hack tests access to the physical infrastructure?

K3 Level

1. Explain the need for green chemistry.
2. Explain with an example about solventless reaction.
3. Illustrate with an example using water as a green solvent
4. Explain the characteristics of an ionic liquid with examples.
5. Explain how to plan a green synthesis in a chemical laboratory
6. Describe about solid supported organic synthesis.
7. Explain phase transfer catalysis with an example.
8. Explain the uses of micro wave reactions in green chemistry.
9. Explain any four physical methods to prepare nano particles.
10. Illustrate with examples the different methods of chemical synthesis of nano materials.
11. Discuss different types of nanomaterials.
12. Explain in detail about any two methods used to characterize nano materials.
13. Discuss in detail about the properties of nanomaterials.
14. Explain plasmon resonance.
15. Deduce the synthesis of nano materials by solid state reaction method.
16. Outline Scanning tunnelling microscope.
17. Describe the applications of nanomaterials.
18. Write a note on nano composites.
19. Explain the following : (i) Fullerenes (ii) Carbon nanotubes
20. Write short notes on Cyber security
21. What is CIA triad explain briefly.
22. What are Confidentiality, integrity and availability
23. Write briefly about malicious software
24. Write short notes on viruses, Trojans, root kits, worms, botnets.
25. Explain briefly about memory exploits
26. Give an account on brief overflow, heap overflow and integer overflow.
27. Write a short essay on cryptography authentication
28. Explain windows security and its importance.
29. Write briefly network security

30. Write short notes on network intrusion and detection systems.
31. Explain software security with brief examples
32. Write short notes on vulnerability auditing, penetration testing
33. Give an brief account on web security
34. Write short notes on intellectual property rights, copyrights, patents in cyber crime.
35. Explain the following trade secret, hacking and intrusion and privacy in cyber crime

K4 Level

1. Explain the 12 principles in green chemistry
2. Elucidate “atom economy” with suitable examples.
3. Deduce solvent less reaction and sonication reaction
4. Explain phase transfer catalysis and micro wave reactions in green chemistry.
5. Explain how to plan a green synthesis in a chemical laboratory using all suitable green chemistry principles.
6. Explain briefly synthesis of nanomaterials using plasma arching and CVD method.
7. Describe about synthesis of nanomaterials using sol-gel and electro deposition method
8. Explain the types of Nano materials.
9. Deduce the Instrumentation, principle and applications of scanning electron microscopy (SEM)
10. Deduce the Instrumentation, principle and applications of transmission electron microscopy (TEM)
11. Deduce the Instrumentation, principle and applications of atomic force microscopy (AFM) and scanning tunnelling microscopy (STM)
12. Write an essay on cyber security
13. Give a detailed account on confidentiality, integrity and availability in cyber security
14. Explain properties of malicious software in detail. Add notes on viruses, Trojans, rootkits, worms, botnets
15. Discuss memory exploits add notes on buffer overflow, heap overflow and Integer overflow, Write an essay on cryptography, authentication, password system.
16. Give a detailed account on windows security.
17. Write an essay on network intrusion detection and prevention systems. Add notes on firewalls.
18. Explain software security in detail
19. Give an account on vulnerability auditing, penetration testing, sandboxing and control flow integrity
20. Explain user authentication - legal and ethical issues in web security
21. Write an essay on cyber crime,
22. Give a detailed account on intellectual property rights, copyright, patent, trade secret, hacking and intrusion, privacy, identity threat.