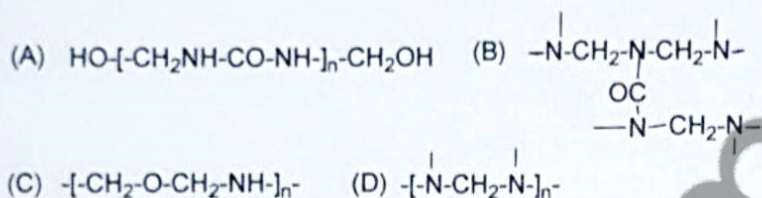


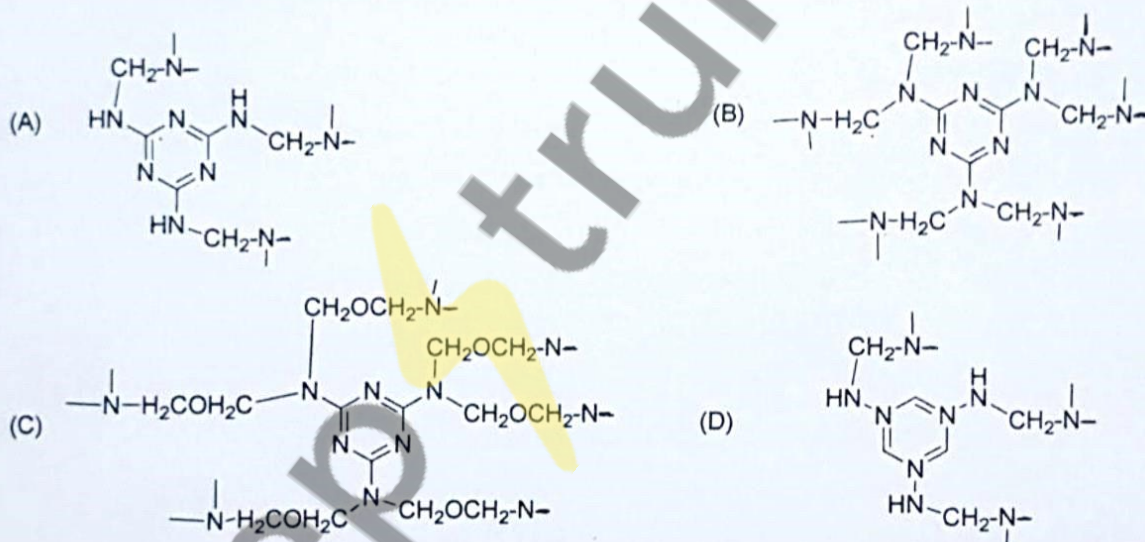
Indian Institute of Technology Guwahati, Department of Chemistry  
End Sem Examination, CH-429 (Petroleum & Petrochemicals), 26/11/2018

9:00 AM-12:00 Noon, Total Marks: 90

1. How liquid paraffin is manufactured? What is the use of it? 2 + 1 = [3]  
 2. Write the specifications of liquid paraffin. [2]  
 3. The structure of urea-formaldehyde resin is: [2]



4. The structure of melamine formaldehyde resin is: [2]



5. To convert novolac resin into network polymer, the addition of cross linking agent is necessary. The agent is: [2]  
 (A) Malamine (B) Hexamethylene tetramine (C) 1,3,5-Triazole (D) Pyridazine [2]  
 6. How epoxy resin is prepared? Write two applications of it. 2 + 1 = [3]  
 7. What is the color of phenol formaldehyde and urea formaldehyde resins? How urea formaldehyde resin is superior to phenol formaldehyde resin? [2]  
 8. What do you mean by BTX? What are the sources of BTX? [2]  
 9. How will you separate ortho-, meta- and para-xylene from a mixture? [2]  
 10. How will you convert meta-xylene to ortho- and para-xylenes? [2]  
 11. Draw a schematic diagram of production of microcrystalline wax. [3]



12. The structure of Nylon-66 is:

[2]

- (A)  $[-\text{HN}-(\text{CH}_2)_6\text{NHCO}(\text{CH}_2)_4\text{CO}_2-]_n$  (B)  $[-\text{HN}-(\text{CH}_2)_4\text{NHCO}(\text{CH}_2)_4\text{CO}_2-]_n$   
(C)  $[-\text{HN}-(\text{CH}_2)_6\text{NHCO}(\text{CH}_2)_4\text{CO}_2-]_n$  (D)  $[-\text{HN}-(\text{CH}_2)_6\text{NHCO}(\text{CH}_2)_6\text{CO}_2-]_n$

13. The structure of chloroprene is:

[2]

- (A)  $\text{CH}_2=\overset{\text{Cl}}{\text{C}}-\text{CH}=\text{CH}_2$  (B)  $\text{CH}_2=\overset{\text{Cl}}{\text{C}}-\text{CH}_3$  (C)  $\text{CH}_2=\text{CH}-\overset{\text{Cl}}{\text{CH}_2}$  (D)  $\text{CH}=\underset{\text{Cl}}{\text{CH}}-\text{CH}=\text{CH}_2$

14. How will you synthesize the following petrochemicals:

2 x 6 = [12]

i) Butadiene, ii) Adiponitrile, iii) Acetaldehyde, iv) Acrylonitrile, v) Methanol, vi) Formaldehyde

15. Write two uses of the following polymers.

1 x 5 = [5]

i) Polystyrene, ii) Styrene butadiene rubber, iii) Polyacrylonitrile,  
iv) Polyethylene terephthalate, v) Polypropylene

16. The polymer used for secondary recovery of crude oil is:

[2]

(A) Polypropylene, (B) Polyacrylamide, (C) Polyacrylates, (D) Polyacrylonitrile

17. What is Ziegler-Natta catalyst? Write one application of it.

[2]

18. What is oxy-acetylene flame? Write its applications.

[2]

19. How will you synthesize ethanol and ethylene glycol from ethylene? Write their uses.

2 + 2 = [4]

20. What is organic theory of origin of petroleum? Give two reasons in support of organic theory.

[2]

21. What is sweetening of gasoline? Explain with one example.

[2]

22. Write about copper corrosion test and its significance.

[3]

23. What is lubricating oil? Classify them on the basis of their uses.

[3]

24. Starting from benzene how will you synthesize caprolactum? Why it is important in industry?

3 + 1 = [4]

25. Define smoke point. How will you improve the smoke point of jet fuel?

[2]

26. What is pour point? Pour point of jet fuel is very important. Why?

[2]

27. What are the different processes carried out in a refinery for production of gasoline fuel?

[2]

28. What is the feedstock for coking? What are different products obtained from coking? Write two uses of coke.

[3]

29. Explain spray and sweat deoiling processes of crude wax.

2 + 2 = [4]

30. What do you mean by dielectric material and break down voltage? What is the break down voltage of lubricating oil?

[3]

31. Which of the following is/are correct specification/s for bitumen?

(A) Softening point, (B) Penetration (C) Ductility, (D) Aniline point, (E) Flash point

[2]

32. What is flash point? What is the significance of it?

[2]

-----X-----