

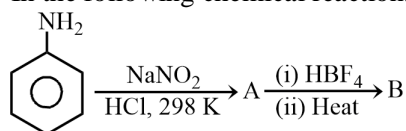


Max Marks: 60

Date: 08.10.2022

ABHIMANYU BATCH
CHEMISTRY : PART TEST
Topic: Organic FLT

1. In the following chemical reactions, the compounds 'A' and 'B' respectively are

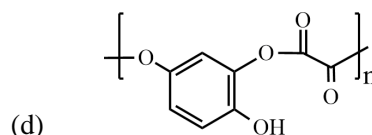
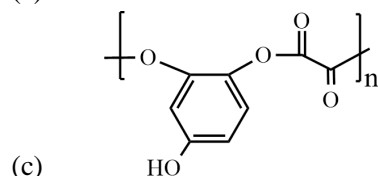
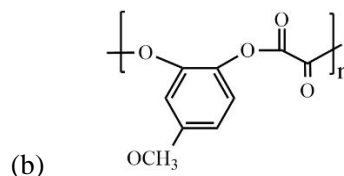
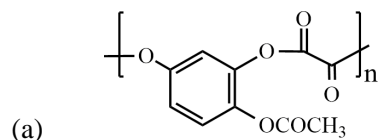
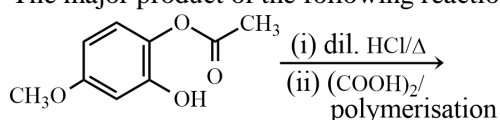


- (a) benzenediazonium chloride and fluorobenzene (b) nitrobenzene and chlorobenzene
(c) nitrobenzene and fluorobenzene (d) phenol and benzene

2. Which of the following is not a sugar?

- (a) Sucrose (b) Glucose (c) Fructose (d) Cellulose

3. The major product of the following reaction is



4. What will be the correct order of vapour pressure of water, acetone and ether at 30°C. Given that among these compounds, water has maximum boiling point and ether has minimum boiling point?

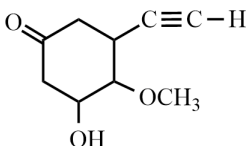
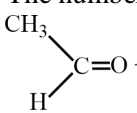
- (a) Water < ether < acetone (b) Water < acetone < ether
(c) Ether < acetone < water (d) Acetone < ether < water

5. Acetone when treated with chloroform form a condensation compound. It is

- (a) Ketol (b) Mesitylene (c) Phorone (d) Chloretone

Space for Rough Work



6. Which of the following is a carbohydrate
(a) Leucine (b) Albumin (c) Inulin (d) Maltase
7. Maximum number of moles of CH_3MgBr required to react with 1 mole of

 (a) 2 (b) 3 (c) 1 (d) 0
8. In Sucrose Glucose and Fructose units joined by glycosidic linkage at
(a) $\text{C}_1 - \text{C}_2$ (b) $\text{C}_2 - \text{C}_4$ (c) $\text{C}_3 - \text{C}_2$ (d) $\text{C}_2 - \text{C}_5$
9. 'Rayon' is
(a) Natural silk (b) Artificial silk
(c) Natural plastic or rubber (d) Synthetic plastic
10. Reaction between $(\text{CH}_3)_2\text{Cd}$ and $\text{C}_6\text{H}_5\text{COCl}$ leads to the formation of
(a) Benzophenone (b) Acetophenone (c) Acetone (d) Benzaldehyde
11. Which of the following produces violet colour with FeCl_3 solution
(a) Enols (b) Ethanol (c) Ethanal (d) Alkyl halides
12. Which of the following is a mixed ketone
(a) Pentanone-3 (b) Acetophenone (c) Benzophenone (d) Acetone
13. Which of the following is an example of ketohexose
(a) Mannose (b) Galactose (c) Maltose (d) Fructose
14. The number of organic products (oxime) is:

 $\text{C}=\text{O} + \text{H}_2\text{N}-\text{OH} \xrightarrow{\text{pH}=3.5-4.5} \dots + \text{H}_2\text{O}$
 (a) 1 (b) 2 (c) 3 (d) 4
15. Pyrolysis of acetone gives $\text{CH}_2 = \text{C} = \text{O}$ called
(a) Methylene oxide (b) ethyl carbon monoxide
(c) Ketene (d) Methone

Space for Rough Work



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ABHIMANYU BATCH
MATHEMATICS : DCT
Topic: Differential Equation

16. Radium decomposes at the rate proportional to the amount present at any time. If P percent of amount disappears in one year. What percent of amount of radium will be left after 2 years?
- (a) $\left(10 - \frac{P}{10}\right)^2 \%$ (b) $\left(10 + \frac{P}{10}\right)^2 \%$ (c) $\frac{P}{10} \%$ (d) $\left(10 - \frac{P}{10}\right) \%$
17. A right circular cone has height 9 cm and radius of the base 5 cm. It is inverted and water is poured into it. If at any instant the water level rises at the rate (π/A) cm/sec, where A is the area of the water surface at that instant. Then the cone is full in ... sec.
- (a) 70 sec (b) 75 sec (c) 72 sec (d) 77 sec
18. Water flows from the base of rectangular tank of depth 16 meter. The rate of flowing the water is proportional to the square root of depth at any time t. If depth is 4 m when t = 2 hours, then after 3.5 hours the depth is _____
- (a) 0 m (b) 0.25 m (c) 0.5 m (d) 3 m
19. The population P in any year t is such that the rate of increase in the population is proportional to the population. Then _____
- (a) $P = ce^{kt}$ (b) $P = ce^{-kt}$ (c) $P = ckt$ (d) $P = c$
20. P is the amount of certain substance left in after time t. If the rate of evaporation of the substance is proportional to the amount remaining, then _____
- (a) $P = ce^{kt}$ (b) $P = ce^{-kt}$ (c) $P = ckt$ (d) $Pt = c$
21. The money invested in a company is compounded continuously. If Rs. 100 invested today becomes Rs. 200 in 6 years, then at the end of 36 years it will becomes _____
- (a) Rs. 6100 (b) Rs. 6200 (c) Rs. 6300 (d) Rs. 6400
22. The rate of reduction of a persons assets is proportional to the square root of the existing assets. If the assets reduced from 25 lakhs to 6.25 lakhs in two years. Thus rate of reduction of his assets will make him bankrupt in _____
- (a) 3 years (b) 5 years (c) 4 years (d) 6 years

Space for Rough Work



23. It is known that, if the interest is changes at the rate equal to the product of the rate of bank interest per annum and the principle. If the interest is compounded continuously, how many will Rs. 1000 be worth at 5% interest after 10 years? ($\sqrt{e} = 1.648$)
 (a) 1648 (b) 1684 (c) 1468 (d) 1486
24. The equation of the curve passing through (2, 5) and having the area of triangle formed by the X-axis, the ordinate of a point on the curve and the tangent at the point 5 sq. units is
 (a) $xy = 10$ (b) $x^2 = 10y$ (c) $y^2 = 10x$ (d) $xy^{1/2} = 10$
25. A tank is draining in such a way that when the height of water in the tank is h cm, it is decreasing at the rate of $0.5\sqrt{h}$ cm/s. Initially the water in the tank is at a height of 25 cm. Then the height of the water after 10 sec. is _____
 (a) 6 cm (b) 6.5 cm (c) 6.2 cm (d) 6.25 cm
26. A stone falls through the air from rest and t sec. after it was dropped its speed v satisfied the equation $\frac{dv}{dt} = 10 - 0.2v$. Then find v as function of t.
 (a) $v = 50 (1 - e^{-2.0t})$ (b) $v = 50 (1 + e^{-2.0t})$ (c) $v = 10 (1 - e^{-2.0t})$ (d) $v = 10 (1 + e^{-2.0t})$
27. If r is the radius of spherical balloon at time t and the surface area of balloon changes at a constant rate k, then
 (a) $4\pi r^2 = \frac{kt^2}{2} + c$ (b) $\pi r^2 = \frac{kt^2}{2} + c$ (c) $4\pi r^2 = kt + c$ (d) $8\pi r^2 = kt + c$
28. If the population grows at the rate 5% per year, the population will be doubled in _____
 (a) $20 \log 2$ (b) $10 \log 2$ (c) $40 \log 2$ (d) $30 \log 2$
29. The rate of growth of bacteria is proportional to the bacteria present. If it is found that the number doubles in 3 hours, then the number of times the bacteria are increased in 6 hours is _____ times the original.
 (a) 4 (b) 6 (c) 8 (d) 5
30. The micro-organisms double themselves in 3 hrs. Assuming that the quantity increases at a rate proportional to itself, then the number of times it multiplies themselves in 18 hours is _____
 (a) 32 (b) 64 (c) 128 (d) 40

Space for Rough Work



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ABHIMANYU BATCH
CHEMISTRY : DCT ANSWER KEY
Topic: Organic FLT

1.	(a)	2.	(d)	3.	(c)	4.	(b)	5.	(d)
6.	(c)	7.	(b)	8.	(a)	9.	(b)	10.	(b)
11.	(a)	12.	(b)	13.	(d)	14.	(b)	15.	(c)

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ABHIMANYU BATCH
MATHEMATICS : PART TEST ANSWER KEY
Topic: Differential Equation

16.	(a)	17.	(b)	18.	(b)	19.	(a)	20.	(b)
21.	(d)	22.	(c)	23.	(a)	24.	(a)	25.	(d)
26.	(a)	27.	(c)	28.	(a)	29.	(a)	30.	(b)