

Max. Marks: 60

Date: 15.10.2022

ABHIMANYU BATCH (SET A) PHYSICS : DCT Topic: Fluids

1. Pressure applied to an enclosed fluid is transmitted undiminished to every point of the fluid and the walls of containing vessel. This law was first formulated by (a) Reynolds (b) Bernoulli (c) Pascal (d) Torricelli Which of the following conversions is correct? 2. $1 \text{ atm} = 1.01 \times 10^4 \text{ Pa}$ (a) 1 mm of Hg = 133 Pa(b) 1 bar = 10^7 Pa $1 \text{ torr} = 10^2 \text{ Pa}$ (c) (d) 3. Pressure is a scalar quantity because (a) it is the ratio of force to area and both force and area are vectors. (b) it is the ratio of the magnitude of the force to area. (c) it is the ratio of the component of the force normal to the area. it depends on the size of the area chosen. (d) 4. Pressure at a point inside a liquid does not depend on (a) the nature of the liquid. (b) shape of the container. the depth of point below the surface of the liquid.

- (c)
- (d) acceleration due to gravity at that point



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- 5. The two femurs each of cross-sectional area 10 cm² support the upper part of a human body of mass 40 kg. The average pressure sustained by the femurs is (Take $g = 10 \text{ ms}^{-2}$)
 - (a) $2 \times 10^3 \,\text{Mm}^{-2}$ (b) $2 \times 10^4 \,\text{Nm}^{-2}$ (c) $2 \times 10^5 \,\text{Mm}^{-2}$ (d) $2 \times 10^6 \,\text{Nm}^{-2}$
- 6. A 50 kg girl wearing heel shoes balances on a single heel. The heel is circular with a diameter 1 cm. The pressure exerted by the heel on the horizontal floor is (Take $g = 10 \text{ ms}^{-2}$)
 - (a) $6.4 \times 10^4 \text{ Pa}$ (b) $6.4 \times 10^5 \text{ Pa}$ (c) $6.4 \times 10^6 \text{ Pa}$ (d) $6.4 \times 10^7 \text{ Pa}$
- 7. Two syringes of different cross section (without needle) filled with water are connected with a tightly fitted rubber tube filled with water. Diameters of the smaller piston and larger piston are 1 cm and 3 cm respectively. If a force of 10 N is applied to the smaller piston then the force exerted on the larger piston is
 - (a) 30 N (b) 60 N (c) 90 N (d) 100 N
- 8. In question number 7, if the smaller piston is pushed in through 6 cm, how much does the longer piston move out?
 - (a) $\frac{2}{3}$ cm (b) $\frac{3}{2}$ cm (c) $\frac{1}{3}$ cm (d) $\frac{1}{2}$ cm
- 9. To what height should a cylindrical vessel be filled with a homogeneous liquid to make the force with which the liquid pressure on the sides of the vessel equal to the force exerted by the liquid on the bottom of the vessel?
 - (a) Equal to the radius (b) Less than radius
 - (c) More than radius (d) Four times of radius





10. A U tube contains water and methylated spirit separated by mercury The mercury columns in the two arms are at the same level with 10 cm of water in one arm and 12.5 cm of spirit in the other as shown in figure. The relative density of the spirit is



(a)	Thermometer	(b)	Barometer	(c)	Manometer	(d)	Hydrometer
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(Take atmospheric pressure = 76 cm of mercury)





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ABHIMANYU BATCH CHEMISTRY : DCT SET - A Topic: Full Organic

16.	Bond angle in ethene is									
	(a)	120°	(b)	180°	(c)	109°	(d)	111°		
17.	A nano	peptide contains	рер	tide linkages						
	(a)	10	(b)	8	(c)	9	(d)	18		
18.	The nu	mber of geometrica	l isomer	s for the following co	mpound	is				
	$CH_3 - 0$	CH = CH - CH - C	H = CH	$-CH = CH_2$						
	(a)	4	(b)	8	(c)	6	(d)	2		
19.	Ethyl a	lcohol exhibits acid	ic chara	cter on reacting with						
	(a)	Acetic acid			(b)	Sodium metal				
	(c)	Hydrogen iodide			(d)	Acidic potassium die	chromate	e		
20.	The mass average molecular mass & number average molecular mass of a polymer are respectively 40,000 a 30,000. The polydispersity index of polymer will be							pectively 40,000 and		
	(a)	< 1	(b)	>1	(c)	1	(d)	0		
21.	The nu	mber of hybrid orbi	tals in a	molecule of benzene	is :					
	(a)	24	(b)	6	(c)	12	(d)	18		
22.	Which	of the following is	used as h	nypnotic?						
	(a)	Acetaldehyde	(b)	Paraldehyde	(c)	Formaldehyde	(d)	Metaldehyde		
23.	Format	ion of benzene from	n acetyle	ene is						
	(a)	Trimerisation	(b)	Tetramerisation	(c)	Dimerisation	(d)	Condensation		



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24.	Which of the following is not a sugar?									
	(a)	Sucrose	(b)	Glucose	(c)	Fructose	(d) Cel	llulose		
25.	Prepar	ation of Bakelite pro	oceeds v	ia reactions.						
	(a)	Condensation and	elimina	tion	(b)	Electrophilic addition	on and d	ehydration		
	(c)	Electrophilic subs	titution a	and dehydration	(d)	Nucleophilic addition	on and d	ehydration		
26.	Insulin	is a protein which	plays the	e role of						
	(a)	An antibody			(b)	A harmone				
	(c)	An enzyme			(d)	A transport agent				
27.	Which	among the following	ng is the	strongest o, p-directin	ng group)				
	(a)	ОН	(b)	Cl	(c)	C ₆ H ₅	(d)	Br		
28.	A gene	e is a segment of a n	nolecule	of						
	(a)	DNA	(b)	m-RNA	(c)	t-RNA	(d)	Protein		
29.	The nu	umber of geometrica	ıl isomer	rs of						
	$H_3C -$	CH = CH - CH = C	CH – CH	$= CH - CH_3$						
	(a)	4	(b)	5	(c)	6	(d)	3		
30.	Numb	er of structural isom	ers for (C_6H_{14} is						
	(a)	3	(b)	4	(c)	5	(d)	6		



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

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ABHIMANYU BATCH CHEMISTRY : DCT SET – A ANSWER KEY Topic: Full Organic

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