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SSC-I NATIONAL BOOK FOUNDATION FBISE

PHYSICS TEST - CHAPTER 7: DENSITY AND TEMPERATURE

Name:		Roll No.		Section:

Total Time: 2:30 Hour
Time Allowed: 150 Minutes

Total Marks: 150

PAPER OBJECTIVE
SECTION-A (MARKS 150)

NOTE: Section-A is compulsory. All parts of this section are to be answered on these pages and handed over to the center superintendent. Deleting / overwriting is not allowed. Do not use lead pencil.

Q.1 Fill the relevant bubble for each part. All parts carry one mark.

Questions	A	B	C	D	A B C D
1. Density is defined as:	volume per unit mass	weight per unit area	mass per unit volume	force per unit area	○○●○
2. The SI unit of density is:	g/m³	kg/m³	kg/m²	kg·m³	○●○○
3. A smaller unit of density is:	g·cm	kg/cm	g/cm³	g/s	○○●○
4. The density of liquids is usually measured in:	kg/s	m/s	N/m	g/mL	○○○●
5. Density is a:	scalar quantity	vector quantity	base quantity	negative quantity	●○○○
6. The formula for density is:	ρ = V/m	ρ = m/V	ρ = m × V	ρ = m + V	○●○○
7. The Greek letter used for density is:	σ	ρ	μ	λ	○●○○
8. 1 g/cm³ equals:	100 kg/m³	1000 kg/m³	10 kg/m³	1 kg/m³	○●○○
9. To convert g/cm³ into kg/m³ we:	divide by 1000	multiply by 100	divide by 100	multiply by 1000	○○○●
10. The density of petrol is 0.9 g/cm³. In kg/m³ it is:	900 kg/m³	90 kg/m³	9000 kg/m³	0.9 kg/m³	●○○○
11. The density of water is:	10 g/cm³	0.1 g/cm³	13.6 g/cm³	1 g/cm³	○○○●
12. The density of water in kg/m³ is:	100 kg/m³	10 kg/m³	1 kg/m³	1000 kg/m³	○○○●
13. Density of a substance depends on:	shape only	colour only	position only	mass and volume	○○○●
14. Substances with closely packed atoms have:	higher density	lower density	zero density	negative density	●○○○

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Questions	A	B	C	D	A B C D
15. Gases have lower density than solids because their particles are:	closely packed	fixed in lattice	heavier	far apart	○○○●
16. Which has the greatest density?	Liquid	Gas	Plasma	Solid	○○○●
17. In general, the order of density is:	gases > liquids > solids	solids > liquids > gases	liquids > solids > gases	solids > gases > liquids	○●○○
18. Density of a small amount of a substance compared to its bulk is:	smaller	larger	the same	zero	○○●○
19. Density of a material changes with:	temperature	colour	position	shape only	●○○○
20. Which amount of water has the greater density at room temperature?	All have same density	100 g	1 kg	1 ton	●○○○
21. A cube of side 5 cm has volume:	25 cm^3	15 cm^3	625 cm^3	125 cm^3	○○○●
22. A material of mass 500 g in a cube of side 5 cm has density:	2.5 g/cm^3	4 g/cm^3	0.25 g/cm^3	100 g/cm^3	○●○○
23. A body has mass 600 g and volume 200 cm^3. Its density is:	0.33 g/cm^3	120 g/cm^3	800 g/cm^3	3 g/cm^3	○○○●
24. A body has mass 8 kg and volume 2 m^3. Its density is:	16 kg/m^3	0.25 kg/m^3	10 kg/m^3	4 kg/m^3	○○○●
25. A liquid of density 50 kg/m^3 fills a container of volume 5 m^3. Its mass is:	10 kg	55 kg	250 kg	0.1 kg	○○●○
26. A liquid of density 1000 kg/m^3 has volume 0.5 m^3. Its mass is:	2000 kg	0.0005 kg	500 kg	1000.5 kg	○○●○
27. The volume of 20 kg of a substance of density 4 kg/m^3 is:	80 m^3	0.2 m^3	5 m^3	24 m^3	○○●○
28. Mass = density × volume is the rearranged form of:	$\rho = V/m$	$F = ma$	$\rho = m/V$	$P = F/A$	○○●○
29. Volume of a cuboid is:	length × width × height	length + width + height	2(l + w)	length × width	●○○○
30. Volume of a cube of side a is:	a^2	a^3	3a	$6a^2$	○●○○
31. Mass of liquid in a measuring cylinder is found by:	adding both masses	multiplying both masses	dividing both masses	subtracting mass of empty cylinder from total mass	○○○●

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Questions	A	B	C	D	A B C D
32. An empty cylinder has mass 145 g; with liquid its mass is 205 g. The mass of the liquid is:	350 g	145 g	205 g	60 g	○○○●
33. A liquid of mass 60 g has volume 60 mL. Its density is:	1 g/mL	60 g/mL	3600 g/mL	0.1 g/mL	●○○○
34. To measure the volume of a liquid we use a:	stop watch	graduated measuring cylinder	screw gauge	metre rule	○●○○
35. To measure the density of a liquid we need a measuring cylinder and a:	balance	stop watch	thermometer	spring	●○○○
36. Density of a regular solid is found by dividing its mass by its:	length	calculated volume	surface area	weight	○●○○
37. The method used to find the volume of an irregular solid is the:	reflection method	stroking method	displacement method	vernier method	○○●○
38. In the displacement method, the volume of the object equals:	final volume + initial volume	final volume × initial volume	final volume − initial volume	initial volume only	○○●○
39. A stone raises water in a cylinder from 40 mL to 55 mL. Its volume is:	15 cm^3	95 cm^3	40 cm^3	55 cm^3	●○○○
40. A stone of mass 45 g raises water from 40 mL to 55 mL. Its density is:	0.33 g/cm^3	3 g/cm^3	1.2 g/cm^3	45 g/cm^3	○●○○
41. A brick of mass 3.30 kg has volume 0.0014 m^3. Its density is about:	4.6 kg/m^3	0.0004 kg/m^3	2357 kg/m^3	23.5 kg/m^3	○○●○
42. Matter exists in how many fundamental states (excluding plasma)?	two	three	four	five	○●○○
43. The three fundamental states of matter are solid, liquid and:	plasma	vapour	fluid	gas	○○○●
44. Matter is made up of tiny:	solid blocks only	waves	lights	particles (atoms and molecules)	○○○●
45. The main reason for the different states of matter is the:	colour of particles	shape of container	gaps between particles	size of the earth	○○●○
46. In solids, particles:	move freely and quickly	flow over each other	have no force between them	vibrate about fixed positions	○○○●
47. Solid particles are held in a:	random order only	fixed lattice	continuous flow	plasma	○●○○
48. Attractive forces between particles are strongest in:	liquids	gases	solids	plasma	○○●○

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Questions	A	B	C	D	A B C D
49. Solids have:	no fixed shape	fixed shape but no volume	fixed shape and fixed volume	no volume	○○●○
50. In liquids, particles:	are fixed in positions	flow and glide over each other	are far apart	do not move	○●○○
51. A liquid has:	fixed shape and fixed volume	no fixed volume	a fixed lattice	no fixed shape but fixed volume	○○○●
52. Liquids take the shape of:	the container	a cube	a sphere only	a lattice	●○○○
53. The density of a liquid is:	larger than a solid	intermediate between solid and gas	smaller than a gas	zero	○●○○
54. In gases, the attractive force between particles is:	very strong	moderate	negligibly weak	infinite	○○●○
55. Gas particles are:	fixed in position	in constant random motion	only vibrating	closely packed	○●○○
56. A gas has:	fixed shape	no fixed shape and no fixed volume	fixed volume only	a lattice	○●○○
57. Gases are highly:	compressible	incompressible	rigid	dense	●○○○
58. Liquids and gases are collectively called:	fluids	solids	plasmas	crystals	●○○○
59. Liquids and gases can flow, therefore they are called:	solids	lattices	fluids	crystals	○○●○
60. Which state has particles with only vibrational motion?	Solid	Liquid	Gas	Plasma	●○○○
61. Which state of matter has highly compressible particles that fill any container?	Solid	Liquid	Crystal	Gas	○○○●
62. When a solid melts into a liquid, its particles:	become free to move past each other	stop moving	become more tightly packed	form a lattice	●○○○
63. The fourth state of matter is:	vapour	crystal	plasma	solution	○○●○
64. Plasma consists of:	only neutral atoms	only molecules	only liquid particles	positive ions, free electrons and neutral atoms	○○○●
65. Plasma is formed when a gas is heated to:	very low temperature	very high temperature	zero kelvin	freezing point	○●○○

Questions	A	B	C	D	A B C D
66. About how much of the visible universe is plasma?	99%	50%	1%	10%	●○○○
67. Plasma conducts electricity because it has:	only neutral atoms	only molecules	no charges	free electrons and moving ions	○○○●
68. Which of these contains plasma?	Ice	Water	Wood	The Sun	○○○●
69. Neon lights glow because of:	solids	liquids	crystals	plasma	○○○●
70. Lightning in the sky forms:	ice	a liquid	a solid	plasma	○○○●
71. Auroras at the poles are caused by:	sound waves	charged particles from the Sun striking the atmosphere	ocean currents	volcanic eruptions	○●○○
72. Auroras are also called:	sun spots	solar flares	nebulae	polar lights	○○○●
73. A massive cloud of dust and gas between stars is called a:	aurora	comet	nebula	planet	○○●○
74. The word nebula is Latin for:	star	light	mist or fog	dust only	○○●○
75. When a material is heated, its particles' kinetic energy:	decreases	remains zero	increases	becomes negative	○○●○
76. Temperature is directly proportional to the average:	mass of particles	kinetic energy of particles	size of particles	colour of particles	○●○○
77. On cooling a substance, the kinetic energy of its particles:	increases	remains constant	becomes infinite	decreases	○○○●
78. The lowest possible temperature is called:	freezing point	absolute zero	boiling point	room temperature	○●○○
79. At absolute zero, the particles of a substance have:	maximum kinetic energy	high pressure	least or no kinetic energy	high speed	○○●○
80. Absolute zero is:	100 K	273 K	373 K	0 K	○○○●
81. Absolute zero on the Celsius scale is:	0 °C	−100 °C	−273.15 °C	273.15 °C	○○●○
82. At absolute zero, the pressure of a gas becomes:	maximum	infinite	equal to atmospheric	zero	○○○●

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Questions	A	B	C	D	A B C D
83. Particles at absolute zero cannot exert pressure because they:	are very hot	do not collide	are heavy	are plasma	○●○○
84. Total energy possessed by particles of a substance is its:	potential energy only	kinetic energy only	internal energy	heat capacity	○○●○
85. Internal energy is the sum of:	kinetic and potential energy of the particles	mass and volume	force and distance	pressure and volume	●○○○
86. Potential energy of particles of a substance is due to:	attractive forces between them	their colour	their speed only	gravity only	●○○○
87. Increasing the temperature of a substance increases its:	mass	number of atoms	internal energy	volume to zero	○○●○
88. Internal energy of a substance increases when its temperature:	decreases	increases	is constant	is absolute zero	○●○○
89. Which can increase internal energy without adding heat?	Cooling it	Doing work on the substance	Removing particles	Nothing can	○●○○
90. A physical property that varies with temperature and is used to measure it is called a:	thermometric property	chemical property	electrical unit	magnetic property	●○○○
91. Which is a thermometric property?	Colour of paint	Expansion of a liquid	Taste of food	Mass of a body	○●○○
92. Liquid-in-glass thermometers use the property of:	gas pressure	colour change	liquid expansion	voltage	○○●○
93. Mercury and alcohol are used in thermometers as:	thermometric liquids	solids	gases	plasmas	●○○○
94. Gas thermometers use changes in:	colour of liquid	volume or pressure of gas	mass of liquid	current only	○●○○
95. A constant volume gas thermometer uses the principle that pressure of a gas is proportional to its:	temperature	mass	colour	density only	●○○○
96. The pressure–temperature relationship at constant volume is known as:	Boyle's law	Newton's law	Gay-Lussac's law	Ohm's law	○○●○
97. A constant pressure gas thermometer uses the change in the gas's:	colour	mass	charge	volume	○○○●
98. Which materials change colour with change in temperature?	Mercury	Alcohol	Copper wire	Liquid crystals	○○○●
99. Liquid crystal thermometers are sealed in a:	glass tube	plastic strip	metal rod	wooden scale	○●○○

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Questions	A	B	C	D	A B C D
100. A thermometer works properly only when it has a:	calibrated scale	large size	bright colour	heavy weight	●○○○
101. To make a scale on a thermometer we need:	two fixed points	one fixed point only	three fixed points	no fixed points	●○○○
102. Fixed points are also called:	moving points	zero points	random points	fixed reference points	○○○●
103. A fixed point is a standard degree of:	weight	length	time	hotness or coldness	○○○●
104. The lower fixed point on the Celsius scale is:	100 °C	32 °C	273 °C	0 °C	○○○●
105. The upper fixed point on the Celsius scale is:	0 °C	100 °C	212 °C	373 °C	○●○○
106. The lower fixed point on the Fahrenheit scale is:	0 °F	212 °F	100 °F	32 °F	○○○●
107. The upper fixed point on the Fahrenheit scale is:	100 °F	373 °F	212 °F	180 °F	○○●○
108. The lower fixed point on the Kelvin scale is:	0 K	273 K	100 K	373 K	○●○○
109. The upper fixed point on the Kelvin scale is:	100 K	273 K	373 K	212 K	○○●○
110. The lower fixed point is the melting point of:	ice	wax	iron	mercury	●○○○
111. The upper fixed point is the boiling point of:	water	alcohol	mercury	iron	●○○○
112. The number of divisions between fixed points on the Celsius scale is:	180	100	212	273	○●○○
113. The number of divisions between fixed points on the Fahrenheit scale is:	100	180	212	32	○●○○
114. The number of divisions between fixed points on the Kelvin scale is:	180	100	273	373	○●○○
115. The number of divisions on a scale is found by:	upper point minus lower point	upper point plus lower point	upper point times lower point	lower point only	●○○○
116. 27 °C in kelvin is:	246 K	27 K	300 K	373 K	○○●○

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Questions	A	B	C	D	A B C D
117. 100 °C in kelvin is:	273 K	373 K	100 K	173 K	○●○○
118. 0 °C in kelvin is:	0 K	273 K	100 K	373 K	○●○○
119. 300 K in °C is:	27 °C	573 °C	300 °C	−27 °C	●○○○
120. The ability of a thermometer to detect small changes in temperature is its:	sensitivity	range	linearity	accuracy of unit	●○○○
121. Sensitivity of a thermometer is analogous to the:	range of a scale	pitch	least count of a measuring instrument	mean value	○○●○
122. A thermometer with sensitivity 0.1 °C can detect changes as small as:	1 °C	10 °C	0.01 °C	0.1 °C	○○○●
123. The difference between the highest and lowest temperatures a thermometer can measure is its:	sensitivity	linearity	range	least count	○○●○
124. A thermometer is linear if equal changes in temperature give:	equal changes in scale reading	different changes in scale reading	no change	zero reading	●○○○
125. Which thermometers are linear and measure equally accurately across their range?	Thermometers without a scale	Broken thermometers	Bimetallic thermometers	Wet thermometers	○○●○
126. A glass thermometer has a thin glass tube with a:	bulb at both ends	metal rod	wooden handle	bulb at the end	○○○●
127. In a liquid-in-glass thermometer, the liquid rises when the temperature:	decreases	increases	is constant	is absolute zero	○●○○
128. A thermocouple thermometer works by measuring:	expansion of mercury	voltage difference between hot and cold junctions	change in colour	gas pressure	○●○○
129. A thermocouple has how many junctions in use?	one	three	two (hot and cold)	four	○○●○
130. When the hot junction of a thermocouple is heated, the voltage:	increases	decreases	becomes zero	stays constant	●○○○
131. Thermocouples are used to measure temperature of:	nothing practical	furnaces and engines	only human body	only ice	○●○○
132. The thermometer most suitable for rapidly changing temperatures is the:	constant volume gas thermometer	resistance thermometer	thermocouple	liquid-in-glass thermometer	○○●○
133. Which thermometer is commonly used in industrial furnaces and kilns?	Thermocouple	Liquid crystal thermometer	Clinical thermometer	Alcohol thermometer	●○○○

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Questions	A	B	C	D	A B C D
134. A narrow capillary bore makes a thermometer:	less sensitive	unusable	more sensitive	less linear	○○●○
135. Compared with a wide tube, a narrow tube has a:	larger volume of liquid	less sensitivity	no liquid	smaller volume of liquid that rises quickly	○○○●
136. Mercury and alcohol are more sensitive than water because they:	expand more on heating	expand less	do not expand	freeze easily at 0 °C	●○○○
137. A larger bulb in a liquid-in-glass thermometer gives a larger:	mass of glass	colour	range	weight of scale	○○●○
138. Mercury is used in thermometers because of its low melting point and:	high boiling point	low boiling point	high density only	low cost only	●○○○
139. Which glass gives a more linear thermometer?	Soda lime glass	Any plastic	Borosilicate glass	Ordinary window glass	○○●○
140. The mercury level in a thermometer is 2 cm at 0 °C and 6 cm at 100 °C. The distance per 1 °C is:	0.06 cm	0.04 cm	0.08 cm	1.00 cm	○●○○
141. The mercury level is 2 cm at 0 °C and 12 cm at 100 °C. The distance per 1 °C is:	0.1 cm	0.12 cm	1 cm	0.01 cm	●○○○
142. Which of the following increases the sensitivity of a liquid-in-glass thermometer?	A narrower capillary tube	A wider capillary tube	Using water	A thicker scale	●○○○
143. Which thermometer needs an electric voltmeter in its working?	Thermocouple	Mercury thermometer	Alcohol thermometer	Bimetallic strip	●○○○
144. Which thermometer needs liquid expansion?	Thermocouple	Liquid crystal	Digital resistance only	Liquid-in-glass	○○○●
145. Which fixed points give the 180 divisions?	32 °F and 212 °F	0 °C and 100 °C	273 K and 373 K	0 K and 100 K	●○○○
146. A change of 1 K on the Kelvin scale equals a change of:	1.8 °C	10 °C	1 °C	0.1 °C	○○●○
147. The unit of temperature in SI is:	kelvin	degree Celsius	degree Fahrenheit	joule	●○○○
148. Which instrument measures temperature?	Thermometer	Barometer	Voltmeter	Ammeter	●○○○
149. Heating a substance makes its particles move:	slower	not at all	in fixed positions	faster	○○○●
150. Which of the following is a fluid?	Iron	Air	Wood	Brick	○●○○