Kingdom of Saudi Arabia
Ministry of Education
Prince Sattam Bin AbdulAziz University

المملكة العربية السعودية
وزارة التعليم
جامعة الأمير سطام بن عبدالعزيز

غلاف ورقة الأسئلة
Question Paper Cover |

| | العلوم الاساسية | القسم | Department | عمادة السنة التحضيرية | الكلية | College |
|---|---|---|---|---|---|
| التوقيع | Signature | | التاريخ | Date | | اليوم | Day |
| | د/........................... | الاسم | Name | لجنة التدقيق Editing Committee | | أستاذ المقرر | Instructor |
| | د/........................... | الاسم | Name | | | التوقيع | Signature |

اختبار بديل الشهر الثاني من الفصل الدراسي الأول للعام الجامعي 1438/1437
First Exam : First Semester 1437 / 1438

معلومات الطالب / Student Information			
	الرقم الجامعي	ID		اسم الطالب	Student Name

معلومات المقرر			
فيز 1010	رقم المقرر ورمزه	Course Code	الفيزياء العامة	مسمى المقرر	Course Title

معلومات الاختبار			
			رقم الشعبة	Section Number
ساعة	زمن الإختبار	Exam Duration	من الساعة 1.00-12.00	فترة الاختبار	Exam Period
6	ورقة	Paper	يتكون الاختبار من عدد	Pages	15	الدرجة الكلية	Exam Mark

توزيع الدرجات		
بعض تعليمات الاختبار	درجة الطالب Student Mark	العظمى Fullmark	السؤال Question	

السؤال Question		الفلمارك Fullmark	درجة الطالب Student Mark
1	الأول	8	
2	الثاني	3.5	
3	الثالث	2.5	
4	الرابع	1	
5	الخامس		
6	السادس		
-	مجموع درجات الأسئلة Questions Total	15	
-	مجموع درجات الأعمال الفصلية Course Work		
-	المجموع الكلي/مائة درجة Course Total		
	كتابة (Written/)		

بعض تعليمات الاختبار

عزيزي الطالب /

حرصا على أدائك الاختبار بشكل نظامي يجدر بك العناية بالآتي :

- الكتابة تكون بالقلم الأزرق فقط.
- الغش أو الشروع فيه أو الاخلال بنظام الاختبارات ، يعرضك للجزاء المنصوص عليه في لائحة تأديب الطلاب.
- يمنع نهائياً إحضار الهاتف الجوال في قاعة الاختبار ومن يضبط معه هاتف الجوال سوف تسحب ورقته ويحرر له محضر محاولة غش .
- على كل طالب إحضار أدواته الخاصة حيث أنه لا يسمح بتبادل الأدوات بين الطلبة.
- يمنع الخروج من الاختبار قبل مضي نصف ساعة من بداية الاختبار ولا يحق للطالب المتأخر اكثر من نصف ساعة دخول الاختبار .

1	A	B	C	D	E
2	A	B	C	D	E
3	A	B	C	D	E
4	A	B	C	D	E
5	A	B	C	D	E
6	A	B	C	D	E
7	A	B	C	D	E
8	A	B	C	D	E
9	A	B	C	D	E
10	A	B	C	D	E
11	A	B	C	D	E
12	A	B	C	D	E
13	A	B	C	D	E
14	A	B	C	D	E
15	A	B	C	D	E
16	A	B	C	D	E

Q1: CHOOSE THE CORRECT ANSWER IN EACH OF THE FOLLOWINGS: (8marks)

1 .A plastic sphere floats in fluid with 30% of its volume submerged, then the density of the fluid is in kg/m^3 (If the density of sphere equals 700 kg/m^3)

A) 1250 kg/m^3
B) 1500 kg/m^3
C) 2400 kg/m^3
D) 300 kg/m^3
E) None of them

4. If P is a pressure , ρ is a mass density and then P/ρ has units of:

A) m^2
B) m^2/s^2
C) N/m^2
D) kg/m^2
E) None of them

2. 200 kg body is standing on a square surface that's length is 30 cm then the pressure is:

A) 1.2×10^{-7} Pa
B) 8.71×10^4 Pa
C) $9.8 \times 10^{+4}$ Pa
D) $9.8 \times 10^{+6}$ Pa
E) None of them

5. Bernoulli's equation can be derived from the conservation of:

A) energy
B) mass
C) angular momentum
D) volume
E) pressure

3. A change in the pressure applied to a fluid is transmitted undiminished to every point of the fluid and to the walls of the container.

A) strain

B) Archimedes' principle

C) Pressure

D) Pascal's law

E) None of them

6.The diagram shows a pipe of uniform cross section in which water is flowing. The directions of flow and the volume flow rates (in cm^3/s) are shown for various portions of the pipe. The direction of flow and the volume flow rate in the portion marked A are:
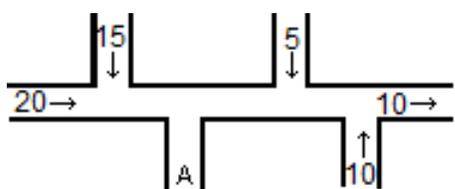
A) $\downarrow$ and 5 cm^3/s

B) $\downarrow$ and 20 cm^3/s

C) $\uparrow$ and 5 cm^3/s

D) $\uparrow$ and 20 cm^3/s

E) None of them

7. One Pascal (Pa) is: A) 1 N/m B) 1 kg/m·s^2 C) 1 m/N D) 1 kg/m·s E) None of them	11. The magnitude of the buoyant force equals the weight of the fluid displaced by the object. A) Bernoulli's equation B) Pascal's law C) Archimedes' principle D) Newton's law E) None of them
8.Water is pumped into one end of a long pipe at the rate of 30 L/min, what will be the rate at the other end in L/min A) 20 B) 30 C) 50 D) 40 E) None of them	12. One end of a cylindrical pipe has a radius of 3 cm. Water (density = 1.0×10^3 kg/m^3) streams steadily out at 8 m/s. The volume flow rate is: A) 4.9×10^{-3} m^3/s B) 2.26×10^{-2} m^3/s C) 4.9 m^3/s D) $1.57 \times 10^{+2}$ m^3/s E) None of them
8. For the schematic below: A) $P_A \rangle P_B, P_A = P_C$ B) $P_A \langle P_B, P_A = P_C$ C) $P_A = P_B, P_A = P_C$ D) $P_A \langle P_B, P_A \rangle P_C$ E) None of them	13. A fluid of density 9.2×10^2 kg/m^3 is flowing through a tube at a speed of 10 m/s. What is the kinetic energy density of the fluid? A) cannot be calculated without knowing the pressure B) cannot be calculated without knowing the elevation C) 4.8×10^3 J/m^3 D) 1.8×10^4 J/m^3 E) 4.6×10^4 J/m^3
10.The atmospheric pressure with altitude A) decreases B) increases C) constant D) (A and C) E) None of them	14. Mercury is a convenient liquid to use in a barometer because: A) it has a high boiling point B) it is a metal C) it has a high density D) it expands little with temperature E) None of them
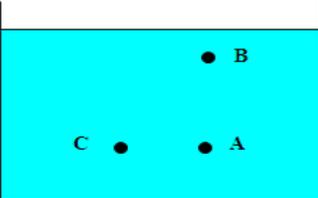
15. A large water tank, open at the top, has a small hole in the bottom. When the water level is 50 m above the bottom of the tank, the speed of the water leaking from the hole:

A) is 2.5 m/s

B) is 31.3 m/s

C) is 39.6 m/s

D) cannot be calculated unless the area of the hole is given

E) None of them
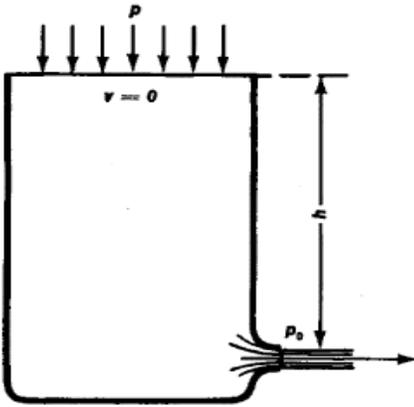
16. The Bernoulli equation

A) $R = \dfrac{A_1}{v_1} = \dfrac{A_2}{v_2}$

B) $R = \dfrac{P_1}{A_1} = \dfrac{P_1}{A_1}$

C) $R = A_1 \times v_1 = A_2 \times v_2$

D) $P_1 + \dfrac{1}{2}\rho v_1^2 + \rho g y_1 = P_2 + \dfrac{1}{2}\rho v_2^2 + \rho g y_2$

E) None of them

Q2: If pipe 1 diameter = 70mm, mean velocity 4m/s, pipe 2 diameter 40mm takes 20% of total discharge and pipe 3 diameter 60mm. What are the values of discharge and mean velocity in each pipe?   (2.5 marks)
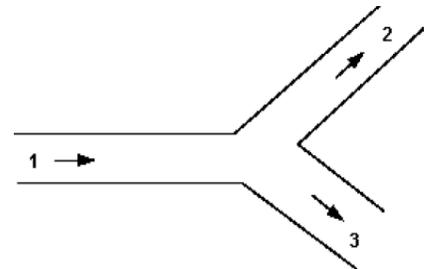
Q3: Water circulates throughout a house in a hot-water heating system. If the water is pumped at a speed of 0.5m/s through a 12.56 cm^2 cross sectional area pipe in the basement under a pressure of 3.0atm, what will be the flow speed and pressure in 5.31cm^2 cross sectional area pipe on the second 5.0 m above? Assume the pipes do not divide into branches.   (2.5 marks)

Q4:The U-tube in Figure contains two liquids in static equilibrium: oil of density

(ρ_{oil} = 930 kg/m^3) is in the right arm and oil of unknown density ρ_x is in the left. Measurement gives l = 140 mm and d = 9.7 mm. What is the density of the Water?

(1 mark)