	PHYSICS DEPARTMENT
	Y 1033 Exam 3 March 31, 200 Obukhov
Naı	me (print):
	On my honor, I have neither given nor received unauthorized aid on this examination. Signature:
	YOUR TEST NUMBER IS THE 5-DIGIT NUMBER AT THE TOP OF EACH PAGE.
(2) (3) (4) (5) (6) (7) (8) (9)	Code your test number on your answer sheet (use 76–80 for the 5-digit number). Code your name on you answer sheet. Darken circles completely. Code your UFID on your answer sheet. Print your name on this sheet and sign it also. You may use a calculator and 1 side of handwritten $8\frac{1}{2} \times 11$ formula sheet. No other materials allowed. Do all scratch work anywhere on this exam that you like. At the end of the test, this exam printout and the formusheet are to be turned in. No credit will be given without both answer sheet and printout with scratch work mo questions demand. Incorrect answers are not taken into account in any way; you may guess at answers you don't know if you feel that correct answer is listed. Guessing on all questions will most likely result in failure. It is not our intention to omit the right answer, but if you believe that none of the answers is correct, please mark that answer closest to your answer. Blacken the circle of your intended answer completely, using a number 2 pencil. Do not make any strainarks. As an aid to the examiner (and yourself), in case of poorly marked answer sheets, please circle your selected answer the examination sheet. Take $g=10 \text{ m/s}^2$ and $c=3\times10^8 \text{ m/s}$ throughout this test. Good luck!!! >>>>>>>WHEN YOU FINISH <>>>>>> WHEN YOU FINISH <>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
	MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.
1.	 Voltage can be induced in a wire by A. moving a magnet near the wire. B. changing the current in a nearby wire. C. moving the wire near a magnet.
	(1) Choices A, B, and C are all true. (2) A only (3) B only (4) C only (5) None of the above
2.	 A wire moving at right angles to a magnetic field has NO induced voltage (1) None of these (2) if the wire is covered with insulation. (3) if it is made of copper. (4) if it is moving very fast. (5) if it is moving slowly.
3.	. If a magnet is pushed into a coil, voltage is induced across the coil. If the same magnet is pushed into a coil with twice the number of loops,
	 twice as much voltage is induced. one half as much voltage is induced. the same voltage is induced. four times as much voltage is induced. none of these
4.	. Compared to the primary voltage, the secondary voltage may be
	(1) larger, smaller, or the same. (2) the same. (3) smaller. (4) larger. (5) the same or smaller, but not larger.

5.	Power is transmitted for long distance at high voltages because the corresponding current in the wires is A. also high to deliver appreciable power to distant places. B. low so that overheating of the wires is minimized. C. repels the birds, not allowing them to sit on wires.							
	(1)	B only	(2) A only	(3)	A and B	(4) C	only	(5) A and C
6.	5. The metal detectors that people walk through at airports operate via							
	(1)	Faraday's law	. (2) Newton's ?	laws.	(3) Ohm's law.	(4) (Coulomb's law	. (5) civil laws.
7.	7. Which of these electromagnetic waves has the shortest wavelength?							
	(1)	X-rays	(2) light waves	(3) ultra	violet waves	(4) infra	ared waves	(5) radio waves
8.	Cor	mpared to radi	to waves, the velocity	of visible l	ight waves in a v	acuum is		
	(1)	the same.	(2) more.		(3) less.	(4) —	(5) —
9.		ile an observe	r on Earth is experien	ncing a tot	al solar eclipse, a	an observer	on the side of	f the moon facing the earth
	 a tiny dark spot move across the face of Earth. nothing unusual. Earth dim and turn reddish. Earth disappear from the sky. — 							
10.		BONUS QUES the periphery of	STION ** of our vision, we are					
	 sensitive to movement, but cannot see color. sensitive to both movement and color. more sensitive to low frequencies than high ones. insensitive to color and movement. none of these 							
11.	1. The main difference between a radio wave and a sound wave is their different							
	(1)	modes of trave	el. (2) frequen	cies.	(3) energies.	(4) an	aplitudes.	(5) wavelengths.
12.	2. What is the frequency of an electromagnetic wave that has a wavelength of 300,000 km?							
	(1)	1 Hz	(2) more than 1 H	${f z}$	(3) less than 1	Hz	(4) —	(5) —
13.	13. The colored dots that make up the color on a TV screen are							
	(1) red, blue, green. (2) red, blue, yellow. (3) yellow, blue, green. (4) red, green, yellow. (5) magenta, cyan, yellow.						(5) magenta, cyan, yellow.	
14.	Cor	mplementary c	olors are two colors the	hat				
	(2) (3) (4)	look good tog are right for e are additive p	ach other.	gether.				

15.	5. Colors seen on TV result	Colors seen on TV result from color						
	(1) addition. (2) subtra	action. (3) either	addition or subtr	action (4) nei	ther addition	nor subtraction	(5) —	
16.	6. Different colors of light co	orrespond to different	ent light					
	(1) frequencies. ((2) polarities.	(3) velocities.	(4) inter	nsities.	(5) none of thes	se	
17.	7. ** BONUS QUESTION ** The yellow clothes of a stage performer can be made to look black if illuminated only by light that is A. magenta plus cyan. B. blue.							
	(1) both A and B	(2) neither A n	or B (3)	A only	(4) B only	(5) —		
18.	8. A mixture of cyan and ye	ellow pigments app	ears					
	(1) green. (2)	blue. (3)) blackish brown.	(4) m	agenta.	(5) orange.		
19.	9. Light will almost always	travel from one pla	ace to another alon	g a path of leas	t			
	(1) time. (2) c	listance.	(3) effort.	(4) expense	e. ((5) complication.		
20.	0. The shortest plane mirror	r in which you can	see your entire im	age is				
	 (1) half your height. (2) equal to your height. (3) about 1/3 your height (4) about 3/4 your height (5) dependent on your di 	t.	irror.					
21.	1. Refraction results from d	ifferences in light's						
	(1) speed. (2) inc	cident angles.	(3) frequency.	(4) all o	f these	(5) none of the	se	
22.	2. The image in a pinhole co	amera is						
	(1) always inverted.	(2) sometimes in	enverted. (3)	always right-sic	de up.	(4) — (5)	_	
23.	3. When the pinhole in a pi	nhole camera is ma	ade larger, the ima	ge is				
	(1) brighter. (2) clea	arer. (3) both	brighter and clear	er. (4) neit	her brighter r	nor clearer. (5) —	
24.	4. Different colors of light to	ravel at different sp	peeds in a transpar	rent medium. In	a vacuum, d	lifferent colors of	light travel	
	(1) the same speed. (2	2) different speeds.	(3) light trave	ls at the same s	peed everywh	ere. (4) —	(5) —	
25.	5. Waves diffract the most v	when their wavelen	gth is					
	(1) long. (2) short.	(3) Both diffract	the same. (4)	depends on the	power. (5)	depends on amp	litude.	
26.	6. Interference is a property A. light waves.		r waves.	C. so	und waves.			
	(1) all of these	(2) A only	(3) B only	(4) C on	ly	(5) none of these		

27.	 27. Light will not pass through a pair of Polaroids when their axes are A. parallel. B. 45 degrees to each other. C. perpendicular. 						
	(1) C only	(2) A only	(3) B only	(4) two of these	(5) all of these		
28. The polarization axes of glasses for 3-D viewing are							
	(1) at right angles	s to each other.	(2) vertical.	(3) horizontal.	(4) — (5) —		
29.	Which of the follo	owing is a property of li	ight waves, but not of	sound waves?			
	(1) polarization	(2) frequency	(3) wavelength	(4) amplitude	(5) none of these		
30.	Double the freque	ncy of a sound and you	ı halve its				
	(1) wavelength.	(2) speed. (3) as	mplitude. (4) wav	elength, speed and amp	litude. (5) none of these		
31.	Sound travels fast	er in					
	(1) steel. (2) a	a vacuum. (3) air.	(4) water. (5)	Sound travels at about	the same speed in all media.		
32.	Caruso is said to l	have made a crystal ch	andelier shatter with	his voice. This is a dem	onstration of		
	(1) resonance.	(2) sound refract.	ion. (3) an ec	ho. (4) interfer	ence. (5) beats.		
33.	A 340-hertz sound	l wave travels at 340 m	n/s in air with a wavel	ength of			
	(1) 1 m.	(2) 100 m.	(3) 1000 m.	(4) 10 m.	(5) None of these		
34.	Inhaling helium in	acreases the pitch of yo	our voice. The reason	for this is that sound tra	avels		
	 (1) faster in helium than in air. (2) slower in helium than in air. (3) the same speed in helium, but the wavelength is greater. (4) — (5) — 						
35.	The beat frequence	cy produced when a 24	0 hertz tuning fork an	d a 246 hertz tuning for	rk are sounded together is		
	(1) 6 hertz.	(2) 240 hertz.	(3) 246 hertz.	(4) 12 hertz.	(5) 243 hertz.		
LIC	THE FOLLOWIN	NG QUESTIONS, NUL	MBERED IN THE C	ORDER OF THEIR AF	PPEARANCE ON THE ABOVE		