MINOR - II EXAMINATION (November-2016)

Time: 1 ½ Hours	Subject: Applied Physi	cs-I
Note: Q. 1 is compulsor.		
Note: Q. 1 is compulsory. Attempt a	iny two questions from the rest.	
Q1. Attempt any five parts.	7XE 7 - 2D B (2x5=	10)
Calculate the speed of a part	ticle if its total energy is thrice of its rest mass energy.	B2 Jul
(b) Calculate the magnitude of P by Sun is 3.8×10 ²⁶ Watt and r	Poynting vector at the surface of Sun, Given the power rad	iated
(c) What is Minkowiski space-tir	me interval? Define time-like, space-like and light-like ever	nts.
(d) What are basic postulates of	f special theory of relativity?	Mt.
(e) Write the expression for Poy	ynting theorem, giving the physical significance of each ter	m.
(f) Find the skin depth for an ele	ectromagnetic wave of frequency 71.56 MHz in a medium	where
μ _r =ξ _r =1 and conductivity= 3.5	54×10 ⁷ mho/m.	Cosml
Q2.	(5,5)	12
(a) Assuming that all the ener	rgy from a 1000W lamp is radiated uniformly in free	space: \2
	nsities of electric and magnetic fields of radiation at a dist	
	→	V/m is:
propagating in free space. Fi		y 13:)
	d integral forms of Maxwell's equations and state	physical
significance of each.		TANA
	J(PXC) - 401 WH (5,5)	(RI (tos
Q3.	JE 2010H (5,5)	1
(a) A u moran has a half life of	f 2 Out If it is travelling with a speed of 2 Oug v 108-1/-	L E
will it travel? If relativistic the relation between relativi (b) What is a Galilean reference	f 2.0μs. If it is travelling with a speed of 2.998 × 10 ⁸ m/s, effects are not taken into account, how far will it travely vistic energy and momentum. Incee frame? Write the expression for velocity transformation. Using this expression, show, how energy transformation.	? Write
will it travel? If relativistic the relation between relativistic (b) What is a Galilean reference special theory of relativity.	effects are not taken into account, how far will it travel vistic unergy and momentum.	? Write
will it travel? If relativistic the relation between relativi (b) What is a Galilean reference	effects are not taken into account, how far will it travel visite energy and momentum. Indee frame? Write the expression for velocity transformation this expression, show, how energy transformation that the property of the	? Write
will it travel? If relativistic the relation between relativistic (b) What is a Galilean reference special theory of relativity.	effects are not taken into account, how far will it travel vistic energy and momentum. Ince frame? Write the expression for velocity transforms	? Write ation in on does
will it travel? If relativistic the relation between relativity. (b) What is a Galilean reference special theory of relativity. takes place. Q4.	effects are not taken into account, how far will it travel visite energy and momentum. Ince frame? Write the expression for velocity transformation. Using this expression, show, how energy transformation. Here is a continuous co	? Write ation in on does
will it travel? If relativistic the relation between relativity (b) What is a Galilean reference special theory of relativity. takes place. Q4.	effects are not taken into account, how far will it travel vistic energy and momentum. Ince frame? Write the expression for velocity transformation. Using this expression, show, how energy transformation. How the propagation through free space, obtain the wave equation.	? Write ation in on does
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Second Minor Examination (November-2015)

-	ct Code: BAS-103				
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lote:	Q. 1 is compulsory. At	tempt any two	and a second	. Ma	eximum Marks: 30
	A STATE OF THE PARTY OF THE PAR	two que	istions from the	rest.	
1	Do any five parts: -		•	6 10= T	(2x5=10)
	(a) Write the stateme	ent and expression	for Pounting the	orom	7= 267 1-V
	Write the wave ed	quation for a cond	ucting medium.	How will you mod	ify it for a dielectric
لمد	State the basic pos	tulates of special t	heary of relativit	71	2 (1- N3) + M3 +
2	State the basic posts. Draw a light cone and Give the expression Give the value and	and indicate space	like, time like∙an	y. d light like events.	~12n
- (Give the expression	n for Lorentz Trans	formations in Mi	nkowiski space.	2 01=1
Ų	Give the value and	expression of wave	e impedance in v	acuum.	20
			FOST	nes	N
Ž.			6		(5,5)
) (a) How does the tim	e dependent field	modify the A	mpere Circuital L	awa Evalai - Ilaw
, -	Conduction current i	s different from dis	placement curre	nt.	
حائح	Write the expression	for Continuity eq	uation. How do	es it change for a	source or sink of
	charges?	(Va)			
	1	: 7-9-	ST = 0	_	(5.5)
C	Vall have kent valle	ا با المالية	24		(5,5)
19	You have kept your miron is $10.1 \times 10^{-8} \Omega \text{m}$.	The relative norm	ing at 800 MHz)	is an Iron Almirah.	The resistivity of
	Iron sheet upto which	the signal of the m	obile phone will	travel	thickness of the
(b)	Find the wave equa	tion for propagat	ion of electron	agnetic wave in	non conductive
	medium. Prove the tra	nsverse nature of	electromagnetic	waves.	2
	180	A)= . 0	= UHV	* (4)	/F.F\
Two	nhotone are approach		11.0		(5,5)
the	photons are approach	ing each other. (alculate the spe	ed of one photon	as observed by _
Shov	w that a circle $x^2 + y^2$	$= r^2$ in frame S ar	ppears to be an i	ellinse in a frame s	' moving with
velo	city v relative to S. Calc	culate the change i	n area.	poc in a manie 3	, moving with a
//			Or	• •	
SHOW	that the minkowiski sp	oace time interval i	s invariant under	Lorentz transform	nations.
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	Town IT.	+(0-12.	$\frac{1}{9}$		
	& winds In	Twel To	Na		