360/180

PRATHYUSHA ENGINEERING COLLEGE

ESTD. 2001

Reg.No. | | | | | | | | | | | |

G & BRANCH	BE/B.Tech –Common to all branches	SET –A	
IESTER	I	DATE	02/12/2019
X MARKS	100	TIME	3 hours
URSE CODE & NAME	PH 8151 / ENGINEERING PHYSICS		

PART – A (10×2 = 20 Marks)

1. Enumerate the factors that affects the elasticity of a material? [Dec.2016]
2. Caliberate the significance of I-shape girders? Discuss its advantages. [Jan.2015]
3. Define forced oscillation and damped oscillation. [Jan.2018]
4. Examine the conditions for a light ray to undergo total internal reflection. [Jan.2016]
5. Define thermal diffusivity [Jan.2017]
6. Examine the operation of bimetallic strips. Discuss its application. [Jan.2016]
7. Give the physical significance of a wave function. [Dec.2016]
8. Calculate the minimum energy an electron can possess in an infinitely deep potential well of width 4 nm. [Dec.2016]
9. Which crystal structure is having least coordination number? Give an example. [Jan.2017]
10. Bismuth has the cell dimension are a=b=c=4.74 Å and α=β=γ= 60°, what is its crystal structure? [Dec.2016]

PART-B (5×16=80 marks)

11.a(i) Compose the structure of a cantilever? (2) [Jan.2019]

(ii) Obtain an expression for the depression at the loaded end of a cantilever whose other end is fixed. (10) [Jan.2019]

(iii) A cantilever of rectangular cross-section has a length of 50 cm. Its breadth is 3 cm and thickness 0.6 cm. A weight of 1 kg is attached at the free end. The depression produced is 0.42 cm. Calculate the Young's modulus of the material of the bar. (4) [Jan.2016]

(Or)

b. (i) Define tensile strength (2) [Jan.2018]

(ii) Derive an expression for the rigidity modulus of the wire using torsional oscillations. (10) [Jan.2018]

(iii) How will you determine the same experimentally? (4) [Jan.2018]

12.a(i) Justify the terms Simple Harmonic motion & a plane progressive wave. (4) [Jan.2017]

(ii) Manipulate the rate of spontaneous and stimulated emissions from the Einsteins' theory. (12) [Jan.2017]

(Or)

b. (i) Differentiate between active and passive sensors. (4) [Dec.2016]

(ii) Enumerate the various classifications of optical fibers (12) [Jan.2017]

13.a(i) Define Thermal Conductivity? (2)

(ii) Derive an expression for the quantity of heat flow through a metal slab whose faces are kept at two different temperatures. Use this expression to determine the thermal conductivity of a bad conductor by Lee's Disc method. (14)

(Or)

b. (i) Explain the following: (i) heat exchangers and (ii) refrigerators. (6)

(ii) Explain the heat conduction through compound media in Series and Parallel. (10)

14.a(i) Accomplish the concept on black body. (2)

(ii) Interpret the expressions for the energy radiations emitted by a black body using Plank's Theory. (10)

(iii) Deduce Wien's and Rayleigh-Jean law expressions from the same. (4)

(Or)

(i) Derive the Schrödinger's time independent and dependent wave equations (12)

(ii) Give the physical significance of wave function. (4)

15.a(i) Justify the term d-spacing. (2)

(ii) Interpret the no. of atom per uint cell, co-ordination number, Atomic radii, Co-ordination number, c/a ratio and packing factors of HCP crystal structure. (14)

(Or)

b. (i) Explain in detail the crystal growth techniques from Melt - Bridgmann and Czochralski's technique. (12)

(ii) Aluminum has an FCC structure. Its atomic weight is 26.98, density $2700 kg/m^3$ and the number of atom per unit cell is 4. Calculate the unit cell dimension and the atomic diameter. (4)

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OG & BRANCH	BE/B.Tech –Common to all branches	SET –B	
MESTER	I	DATE	02/12/2019
X MARKS	100	TIME	3 hours
URSE CODE & NAME	PH 8151 / ENGINEERING PHYSICS		

PART – A

(10 ×2 = 20 Marks)

1.	Define the neutral axis.	[Jan.2016]
2.	Demonstrate the expression for Poisson's ratio?	[Dec.2016]
3.	Which one is the best sensor: temperature or pressure?	[Jan.2018]
4.	Define population inversion.	[Dec.2016]
5.	When a wire is bent back and forth, it becomes hot. Why?	[Jan.2019]
6.	Explain briefly expansion joints.	[Jan.2016]
7.	Discuss the properties of photons and matter waves.	[Dec.2016]
8.	For a free particle moving in a one dimensional box, the ground state energy cannot be equal to zero. Why?	[Dec.2016]
9.	Why is diamond called as loosely packed system?	[Jan.2017]
10.	Analyse the term - Buger vectors.	[Jan.2019]

PART-B

(5×16=80 marks)

11.a(i)	Define tensile strength	(2)	[Jan.2019]
(ii)	Derive an expression of rigidity modulus of the wire using Torsional pendulum and also determine rigidity modulus experimentally.	(14)	[Jan.2018]
	(Or)		
b. (i)	Explain bending moment of a beam.	(2)	[Jan.2018]
(ii)	Manipulate an expression for the elevation at the centre of a beam which is loaded at both ends.	(10)	[Jan.2018]
(iii)	Describe an experiment to determine the young's modulus of a beam by uniform bending.	(4)	[Jan.2018]
12.a(i)	Define acceptance angle and derive expressions for acceptance angle and numerical aperture	(8)	[Jan.2019]
(ii)	Give short notes on: pressure sensor and displacement sensor.	(8)	[Jan.2019]
	(Or)		
b. (i)	Describe the principle, construction and working of homojuction and hetero junction laser. List out its merits, demerits and applications.	(14)	[Jan.2018]
(ii)	For a hetero junction semiconductor laser, the band gap of semiconductor used is 1.44 eV. Find the wavelength of the semiconductor laser output?	(2)	[Jan.2016]
13.a(i)	Define Thermal Conductivity?	(2)	[Jan.2019]
(ii)	Articulate an expression of thermal conductivity of good conductors using Forbe's method.	(14)	[Jan.2019]
	(Or)		
b. (i)	Design the heat conduction through compound media in Series and Parallel.	(10)	[Jan.2019]
(ii)	Explain the following: (i) heat exchangers and (ii) refrigerators.	(6)	[Jan.2019]

14.a(i) Explain about Compton Effect? (2)

(ii) Derive an expression for Compton wavelength for scattered photon. (14)

(Or)

b.(i) What is tunneling? (2)

(ii) Explain the principle, construction and working of Scanning Tunelling Microscope with neat diagram. (14)

15.a(i) Articulate the atomic radius, coordination number and packing factor for SC, BCC, FCC crystal structures with neat sketches. (12)

(ii) Show that the c/a ratio of a hcp is 1.63 (4)

(Or)

b.(i) What is meant by interplanar distances. Derive interplanar distance in a cubic structure. (6)

(i) Elaborate on the defects in crystal in all dimensions with neat illustrations. (10)

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PRATHYUSHA ENGINEERING COLLEGE

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Reg.No.

PROG & BRANCH	BE -- CSE	IAT – 02- SET - A	
SEMESTER	VI	DATE	25 FEB 2020
MAX MARKS	50	DURATION	100 min
COURSE CODE / NAME	IT 8076 / Software Testing		

PART A **(5*2 marks= 10 marks)**

(Answer all the questions)

1. **Compare Black box and White box Testing.**
2. **Define Unit Test. Give an example.**
3. **Sketch the control flow graph for an ATM withdrawal System.**
4. **Give a note on the procedure to compute cyclomatic complexity.**
5. **List out types of system testing.**

PART B **(1* 8 marks + 2*16 marks= 40 marks)**

No choice (8 marks)

6. **i) Illustrate equivalence class partitioning and boundary value analysis using suitable examples.** **(8)**

(16- marks)

7 **a) i) Explain the significance of control flow graph and cyclomatic complexity in white box testing with a pseudo code for sum of 'n' numbers .** **(8)**

ii) Explain the various white box techniques with suitable test cases **(8)**

Or

b) **i) Discuss in detail code coverage testing.** **(8)**

ii) Explain about state transition testing **(8)**

8 a) **i) Explain elaborately about the various types of system testing** **(8)**

ii) State about configuration testing and objectives **(8)**

Or

b) i) Differentiate alpha testing from beta testing and discuss in detail about the phases in which alpha and beta testing is done. **(8)**

ii) Explain Requirement based testing and State based Testing. **(8)**

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PRATHYUSHA ENGINEERING COLLEGE

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Reg.No.											

PROG & BRANCH	BE -- CSE	IAT – 02- SET - B	
SEMESTER	VI	DATE	25 FEB 2020
MAX MARKS	50	DURATION	100 min
COURSE CODE / NAME	IT 8076 / Software Testing		

PART A **(5*2 marks= 10 marks)**

(Answer all the questions)

1. **Compare and Contrast Alpha testing and Beta Testing.**
2. **List the Levels of Testing.**
3. **What is Regression Testing?**
4. **Define Test harness.**
5. **What is the advantage of Bottom up integration ?**

PART B **(1* 8 marks + 2*16 marks= 40 marks)**

No choice (8 marks)

6. **i) Demonstrate the various black box test cases and equivalence class partitioning and boundary value analysis to test a module for payroll system. (8)**

(16 marks)

7 **a) i) What is regression testing? Outline the issues to be addressed for developing test cases to perform regression testing. (8)**

ii) Explain the difference integration testing strategies for procedures and functions with suitable diagrams. (8)

Or

b) **i) How would you identify the hardware and software for configuration testing and Explain what testing techniques applied for website testing? (8 + 8)**

8 **a) i) State Unit Test and describe about planning and Designing of Unit Testing. –**

(8)

ii) Discuss in detail about static testing and Structural testing. (8)

Or

b) i) Explain elaborately about the various types of system testing. (8)

ii) Explain components of test plan in detail. (8)

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Reg.No.											

PROGRAMME	B.E. / CIVIL	IAT – 2 : SET – A	
SEMESTER	VII	DATE	24 AUG- 2019
MAX MARKS	50	DURATION	100 Min
COURSE CODE & NAME	CE6006-TRAFFIC ENGINEERING AND MANAGEMENT		

PART- A

(5*2 Marks= 10 Marks)

(Answer all the questions)

1. List out the different classifications of any intersection.
2. Differentiate between At Grade Intersection and Grade Separated Intersection.
3. Draw a typical rotary intersection and mark its salient features.
4. What are the different methods by which street light arrangement can be done?
5. State the factors governing the spacing of lanterns in street lighting.

PART- B

(1* 8 Marks + 2*16 Marks= 40 Marks)

6) Enumerate the various design elements of rotary with IRC Standards and neat sketches and explain its importance and characteristics. **(8)**

7) **a)** A two-phase traffic signal is to be installed at a right angled crossing of two city streets. The site is "average" and the approaches are 15 meters wide between kerbs. The design hour traffic volumes in PCU's are given in the table below. **(8)**

From	N			E			S			W		
To	E	S	W	S	W	N	W	N	E	N	E	S
Flow in PCU's per hour	50	815	75	68	550	52	65	666	79	73	688	69

(b) A fixed time 2-phase signal is to be provided at an intersection having a North-South and an East-West road where only straight-ahead traffic is permitted. The design hour flows from the various arms and the saturation flows for these arms are given in the following table.

Details on flow	North	South	East	West
Design hour flow (PCU's /hour)	810	380	770	950
Saturation Flow (PCU's /hour)	2500	1900	2800	3100

Design the traffic signal with timing diagram and phase diagram. Assume relevant data. (8)

(Or)

b) i) Explain in detail the different types of grade separated intersections and its functioning with neat sketches and IRC Standards. (8)

ii) (b) With neat sketches write any eight types of road marking as per IRC standards with its functional elements. (8)

8) a) i) Formulate the different factors cause accidents in traffic engineering with ICRC standards (8)

ii) Interpret the effects of accidents, in detail. (8)

(Or)

b) i) Explain various luminaries distributions used to distribute the light in various situations (8)

ii) What are the effects of air pollution caused by various transports? (8)

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Reg.No.											

PROGRAMME	B.E. / CIVIL	IAT – 2 : SET – B	
SEMESTER	VII	DATE	24 AUG - 2019
MAX MARKS	50	DURATION	100 Min
COURSE CODE & NAME	CE6006-TRAFFIC ENGINEERING AND MANAGEMENT		

PART- A

(5*2 Marks= 10 Marks)

(Answer all the questions)

1. Differentiate between 'Cycle and Phase' in traffic signal design.
2. Draw any four basic forms of at-grade intersections.
3. Write any four object markings used on a road.
4. List out the various causes of road accidents.
5. Differentiate between the "silhouette and reverse silhouette" in street lighting.

PART- B

(1* 8 Marks + 2*16 Marks= 40 Marks)

6) Brief the measures to reduce the vehicular air pollution. **(8)**

7) a) i) Write the various advantages and disadvantages of different types of traffic signals. **(8)**

ii) List out the general principles to be followed while installing traffic sign board. **(8)**

(Or)

b) i) A two-phase traffic signal is to be installed at a right angled crossing of two city streets. The site is "average" and the approaches are 15 meters wide between kerbs. The design hour traffic volumes in PCU's are given in the table below. **(8)**

From	N			E			S			W		
To	E	S	W	S	W	N	W	N	E	N	E	S
Flow in PCU's per hour	499	850	200	257	930	555	362	964	560	570	680	400

ii) A fixed time 2-phase signal is to be installed at a right crossing of two city streets. The site is average and approaches are 15 m wide between kerbs.The design hour traffic volumes in PCTTs are given below.

The design hour flows from the various arms and the saturation flows for these arms are given the following table.

Details on flow	North	South	East	West
Design hour flow (PCU's /hour)	800	400	750	600
Saturation Flow (PCU's /hour)	6.0	6.5	7.5	7.0

Design the 2 phase signal with its timing and phasing diagram by making suitable assumptions. (8)

8) a) i) Investigate the benefits of NMT. (8)

ii) Write any four environmental hazards of the traffic development with its abatement measures. (8)

(Or)

b) i) Explain briefly promotion and integration of public transportation.. (8)

ii) Explain detail any two causes of road accidents and corresponding preventive measures. (8)

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PROGRAMME	B.E. - CSE,EEE,MECH & CIVIL	IAT – 01- SET A	
SEMESTER	II	DATE	08-02-2020
MAX MARKS	50	DURATION	100 min
COURSE CODE & NAME	GE8291-ENVIRONMENTAL SCIENCE AND ENGINEERING		

PART A (5*2 marks= 10 marks)

(Answer all the questions)

1) What is meant by ecosystem? Mention its types.
2) Define ecological succession.
3) Identify the difference between food chain and food web
4) Explain the major reasons for man-wildlife conflicts.
5) Explain various adoptive features of desert ecosystem.

PART B (1* 8 marks + 2*16 marks= 40 marks)

6) Examine the various methods of approach followed in In-situ and Ex-situ. **(8)**

7) a) i) Identify the types of ecological pyramids in detail. **(6)**

ii) Explain forest and pond ecosystem in detail. **(10)**

(Or)

b) i) Discuss the importance of biodiversity. Explain the impact of biodiversity loss. **(10)**

ii) Explain bio-geographical classification of India. **(6)**

8) a) i) Enumerate the various hot spots of biodiversity in India. **(8)**

ii) Explain (a) Endemic species (b) Indicator species
(c) Vulnerable species (d) Endangered species. **(8)**

(Or)

b) i) Elaborate the various threats for the loss of biodiversity. **(8)**

ii) Discuss (a) Productive values (b) Social values (c) Optional values (d) ethical values. **(8)**

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PROGRAMME	B.E. - CSE,EEE,MECH & CIVIL	IAT – 01- SET B	
SEMESTER	II	DATE	08 -02-2020
MAX MARKS	50	DURATION	100 min
COURSE CODE & NAME	GE8291-ENVIRONMENTAL SCIENCE AND ENGINEERING		

PART A **(5*2 marks= 10 marks)**

(Answer all the questions)

1. What are the functional components of an ecosystem? Give example.
2. Define biodiversity. Mention its classification with suitable example.
3. Identify various adoptive features of desert ecosystem.
4. Compare Endangered and Endemic species.
5. Simplify hotspot. Mention the two hotspots present in India.

PART B **(1* 8 marks + 2*16 marks= 40 marks)**

6. Examine the methods of conservation of biodiversity. **(8)**

7. a) i) What are ecological succession processes? Explain in detail. **(6)**

   ii) Explain desert and grassland ecosystem in detail. **(10)**

(Or)

   b) i) Describe the types, characteristics, structure and functions of aquatic ecosystem. **(10)**

   ii) Analyze the energy flow in the ecosystem with necessary diagram. **(6)**

8. a) i) Discuss in detail about poaching and man-wildlife conflicts. Explain any ten control measures. **(8)**

   ii) Evaluate the various values of biodiversity. **(8)**

(Or)

   b) i) Estimate the role of biodiversity at global, national and local levels. **(8)**

   ii) Justify India to be Mega diversity in nation with a required data. **(8)**

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