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S. B. Roll. No.....

001

FUNDAMENTALS OF ELECTRICAL ENGINEERING
2nd Exam/Elect/6523/May'25
(For 2023 Batch Onwards)

Duration: 3Hrs. **M.Marks:50**

SECTION-A

Q1. Do as directed any nine of the following. **9x1=9**

a. The unit of voltage is_____
b. Resistance of conductor is _____proportional to its area.
c. Power factor of pure resistive circuit is_____
d. The commercial unit of electrical energy is_____
e. In star connected system, the value of line voltage is_____
f. Frequency of D.C is_____
g. For battery charging ____supply is required?
h. The lead used in lead acid cell is_____
i. Ideal current source has _____internal resistance?
j. What is the tolerance level of silver while measuring resistance?
k. Two resistances of value 10 ohm and 20 ohm connected in series will results in_____
l. Define form factor?

SECTION-B

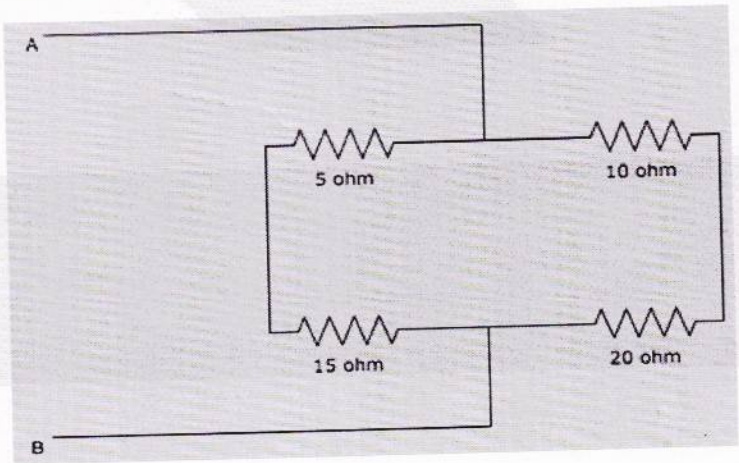
Q2. Attempt any five questions. **5x4=20**

i. Write down five differences between AC & DC.
ii. Define working and principal of Wheatstone bridge
iii. Write down Five advantage of Electrical Energy?
iv. State and explain kirchhoff"s law?
v. Draw STAR and DELTA connections also write voltage and current relations for both types?
vi. Define power factor? Write down disadvantage of low power factor?
vii. What are the applications of lead acid battery?

SECTION-C

Q3. Attempt any three questions. **3x7=21**

a. Write in detail about care, maintenance and handling of lead acid batteries?
b. State and explain ohm's law. What is its limitation?
c. Write down the Advantage of 3 phase system over 1 phase system in detail?
d. What are the effects of alternating voltage on resistance, inductor, and capacitor?
e. Calculate the total resistance between the points A and B.



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002

S. B. Roll. No.....

APPLIED PHYSICS-II
2nd Exam/Common/9345/May'25
(For 2023 Batch Onwards)

Duration: 3Hrs. **M.Marks:50**

SECTION-A

Q1. Do as directed any nine of the following. **9x1=9**

i. _____ Waves require a material medium for their propagation.
ii. Concave lens always forms _____ and _____ image of the object.
iii. _____ is the SI unit of Capictance.
iv. The increased number density of upper energy level as compared to ground energy level in a laser is called _____.
v. The force between two point charges has the maximum value in vaccum. (T/F)
vi. The Ruby laser is a continuous output laser. (T/F)
vii. Convex mirror is used as a rear view mirror in vehicles. (T/F)
viii. Sound wave is a transverse wave. (T/F)
ix. Which of the following phenomenon is not important for laser action
a) Population Inversion b) Stimulated emission c) Pumping d) Refraction
x. If two resistances 6Ω and 4Ω are joined in parallel, the resistance of the combination is given by
a) 10Ω b) 2Ω c) 2.4Ω d) 4.2Ω
xi. When an object is placed at distance 2f from a convex lens of focal length f, the image is formed at
a) 2f b) Infinity (∞) c) between f and 2f d) Beyond 2f
xii. Which of the following is correct expression for the capacitance (C) of a parallel plate capacitor where A is area of plates, d is seperation between plates and ε is the permitivity of the medium.
a) C=Aεd b) C=(Aε)/d c) C=d/(Aε) d) C=1/(Aεd)

SECTION-B

Q2. Attempt any five questions. **5x4=20**

a. What are electric lines of force? Write down their properties.
b. What is Total Internal Reflection (TIR)? Give essential conditions for it.
c. What is Ohm's law? Give its experimental verification.
d. Write down the applications of the lasers.
e. What are differences between Echo and Reverberation?
f. How a Galvanometer is converted into Ammeter?
g. An object is placed at a distance of 15cm from a convex lens of focal length 10cm. What will be the position and nature of image and give its magnification.

SECTION-C

Q3. Attempt any three questions. **3x7=21**

i. Derive the lens formula.
ii. a) An electromagnetic wave has a frequency of 3×10^{14} Hz. What will be its wavelength? **3**
b) What are ultrasonic waves? Give their properties. **4**
iii. Derive the expression for capacitance of the combination of capacitors when they are connected in
a) Series b) Parallel
iv. State and explain Kirchoff's laws electricity with examples.
v. What are the differences between Paramagnetic, Diamagnetic and Ferromagnetic materials?

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003

S. B. Roll. No.....

ENVIRONMENTAL STUDIES
2nd Exam/Common/0109/May'25
(For 2023 Batch Onwards)

Duration: 3Hrs. **M.Marks:50**

SECTION-A

Q1. Do as directed any nine of the following. **9x1=9**

a. _____ is the study of organisms in relation to their environment.
b. Living factors in the environment are called _____ factors.
c. The full form of BOD is _____.
d. The objective of the _____ Act is to protect and improve the environment in the country.
e. LED bulb is more_____ than fluorescent bulb.
f. Hydrogen when burnt produces only____ as a by-product.
g. Polythene bags can be decomposed by bacteria to form compost. (T/F)
h. The periodic rise and fall of the water level of sea is called tide. (T/F)
i. Carbon dioxide is not a greenhouse gas. (T/F)
j. Any sound higher than 80 dB can be termed as noise. (T/F)
k. Rainwater harvesting means to collect store and use rain water. (T/F)
l. Solar energy is a non-renewable source of energy. (T/F)

SECTION-B

Q2. Attempt any five questions. **5x4=20**

i. Discuss the negative effects of groundwater depletion.
ii. State the various steps involved in carbon cycle.
iii. What is radioactive pollution?
iv. Write a short note on global warming.
v. What is e-waste and e-waste management?
vi. What is environmental impact assessment (EIA)?
vii. What do you understand by Green Building?

SECTION-C

Q3. Attempt any three questions. **3x7=21**

a. What is desertification? What are the causes of desertification?
b. Discuss the effects of water pollution on living and non-living things?
c. Write a brief note on Environment Protection Act.
d. Discuss the biotic and abiotic components of ecosystem.
e. i) State the advantages of biodiesel. ii) Give properties of eco-friendly building materials.

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ENGLISH AND COMMUNICATION SKILLS-II
2nd Exam/Common/0105/May'25
(For 2023 Batch Onwards)

Duration: 3Hrs. **M.Marks:50**

SECTION-A

Q1. Do as directed any nine of the following. **9x1=9**

a. Who has written the poem, 'Daffodils'?
b. What was Behrman's dream?
c. Rahim loved a Muslim girl. (True/False)
d. Agenda is a_____ of items to be discussed in a general meeting.(Fill in the blank)
e. Press release is published free of cost in the newspaper. (True/False)
f. 'All the world's a _____'. (Complete the line)
g. Who was Ratan?
h. He said, "I have painted a picture." (Change the Narration)
i. 'Round the clock' use the phrase in your own sentence.
j. what is your name (Punctuate it)
k. One who eats no animal flesh? (Give one word substitution)
l. 'Inconceivable'(Identify the Prefix & Suffix)

SECTION-B

Q2. Attempt any five questions. **5x4=20**

i. Give the central idea of the poem, 'Success'.
ii. What influence did the nest have on Rahim Khan?
iii. What did the postmaster do in his free time?
iv. What were the two ambitions of Rahim Khan as a young man?
v. What are the characteristics of a good press release?
vi. Draft a notice of a sports kit bag found in the stadium.
vii. Draft a press release about the Annual Athletic meet held in your college.

SECTION-C

Q3. Attempt any three questions. **3x7=21**

a. Write the character-sketch of Behrman. (The Last Leaf)
b. Describe the seven stages of man's life as given by Shakespeare.
c. Write characteristics of a good project report.
d. Draft a letter placing an order for stationery goods.
e. **Make a précis of the following passage and give it a suitable heading.**

Freedom has given us a new status and new opportunities. But it also implies that we should give up selfishness, laziness and narrowness of our look. We should discipline ourselves, and discharge our duties honestly. We should put our full capacity in productive efforts. We should remember that work is health and service is happiness. The greatest crime today is idleness. If we root out idleness, all our difficulties will disappear. We must make a contribution to the welfare of the country. There can be no progress without hard work. It is essential for marching ahead in the world today.

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APPLIED MECHANICS

2nd Exam/Common/9346/May'25

(For 2023 Batch Onwards)

Duration: 3Hrs. **M.Marks:50**

Note: Use of Scientific Calculators Allowed.

SECTION-A

Q1. Do as directed any nine of the following. **9x1=9**

a. A body which does not change in shape and size under the effect of forces acting over it is known as _____.
b. Scalar quantity is one that has _____ only.
c. The forces whose lines of action lie in the same plane are known as _____.
d. Moment of a force = Force × _____.
e. Angle of repose is _____ angle of friction.
f. Maximum value of static friction is called _____.
g. Rotational tendency of a force is known as_____.
h. Axis about which the area of a plane figure is symmetrical on both of its sides is called _____.
i. A machine is reversible if the efficiency is more than _____.
j. Newton's 2nd law of motion gives us a method of measuring force. (T/F)
k. The magnitude of frictional force between two surfaces is dependent on area of contact. (T/F)
l. The algebraic sum of the moments in equilibrium is equal to zero. (T/F)

SECTION-B

Q2. Attempt any five questions. **5x4=20**

i. What is mechanics and explain various branches of applied mechanics?
ii. Explain the concept of free body diagram with examples.
iii. Explain the concept of couple and state the properties of couple.
iv. What is friction and explain types of friction?
v. Explain angle of friction and co-efficient of friction.
vi. Define centroid, centre of gravity, axis of reference and axis of symmetry.
vii. Explain the concept of Ideal machine, Reversible machine and Self locking machine.

SECTION-C

Q3. Attempt any three questions. **3x7=21**

a. Explain different force system with diagrams. Also explain the principal of transmissibility of forces.
b. Explain the useful and harmful effects of friction. Also explain the various methods to reduce the friction.
c. Find the centroid of an I-section having top flange 150 × 20 mm, web 200 × 20 mm and bottom flange 250 × 20 mm.
d. Drive an equation for the force required for equilibrium of a body lying on a rough inclined plane when force is acting along the inclined plane and motion of the body is down the plane.
e. Explain simple wheel and axle with diagram. Also drive the expression for efficiency of simple wheel and axle.

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ENGLISH AND COMMUNICATION SKILLS-II
2nd Exam/Common/2051-A/May'25

Duration: 3Hrs. **M.Marks:75**

SECTION-A

Q1. Choose the correct option. **10x1=10**

i. The grandmother came to leave the author at ____
   a) Airport b) bus stands c) taxi station d) railway station
ii. The child was _____ by nature. a) Curious b) sad c) upset d) angry
iii. The refugees were driven out of their country due to____. a) Floods b) famine c) fire d) earthquake
iv. The third stage of man's life is_____. a) School boy b) Lover c) Soldier d) Infant
v. The poem "Pippa's song" has been written by___.
   a) Shakespeare b) Keats c) Robert browning d) Byron
vi. The prime minister is in his _____. a) 70's b) 60's c) 40's d) 80's
vii. Abraham Lincoln writes a letter about his____. a) Son b) grandson c) nephew d) father
viii. Abdul Kalam has also written_____. a) Prose b) stories c) songs d) poems
ix. The old man saved coin to buy _____. a) Bread b) Seeds c) Manure d) Milk
x. The poem "All the world's stage "has been written by _____.
   a) Khushwant Singh b) R.P. Chaddha c) R.K. Narayan d) William Shakespeare

SECTION-B

Q2. Attempt the following. **3x5=15**

a) Give the character sketch of author's grandmother in "The Portrait of a Lady "?
OR
Discuss the child psychology in the story "The lost child "?
b) Give the life sketch of Dr. Abdul Kalam?
OR
What letter did Lincoln wrote to his son's headmaster?
c) Give the central idea of the poem "All the world is a stage "?
OR
Say Not, The Struggle Nought Availeth?

Q3. Write a letter to the Municipal Commissioner to improve sanitation in your locality? **10**
OR
Write a letter to the electricity board for repairing street light near your house?

Q4. Attempt the following. **5x2=10**

a. Define inspection note?
b. Define report?
c. Write two advantages of a memo form?
d. Define circulars?
e. Give any two uses of email?

SECTION-C

Q5. Do as directed. **10x1=10**

i. That which cannot be heard? (One word substitution)
ii. A place where milk is converted into butter? (One word substitution)
iii. Use the word "accomplice" in a sentence."
iv. Hindi /Punjabi equivalent of "Administrator ".

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v. Form a word using prefix "in ".
vi. Form a word using suffix using "ship".
vii. She is saying to me, "Rani is getting married."? . (Change to narration)
viii. Use the idiom,"All in one ".
ix. He said to her, "where do you live "? (Change the narration)
x. He said to me was Shakespeare a great poet (punctuate it)

Q6. Write down the characteristics of good press release? **5**

OR

Write down some of the basic Employable skills in detail?

Q7. Write down the tips for facing interviews? **8**

OR

Write down the essentials of group discussion?

Q8. Make a précis of the following. **7**

The word discipline comes from the word '"disciple". A disciple is a learner. Discipline means learning to obey rules. A child needs discipline. He has first to learn to obey his parents. They know what is best for him. There must be discipline in the school. School boys and girls have to learn to obey the school rules. They will learn nothing without discipline. Even in games there must be discipline. A football team must obey its captain and the rules of the game. There must be strict discipline in the army. If the soldiers do as they like and do not obey orders, they will lose the battle. Above all, we must learn self – discipline. We must control our temper and our self desires. We must make ourselves do what is right.

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ENGINEERING DRAWING-II
2nd Exam/Civil/Elect/Mech./Auto/2953/Dec'22
(For 2018 Batch Onwards)

Duration: 4Hrs. **M.Marks:100**

SECTION-A

Q1. Fill in the blanks. **10x1=10**

a. A thread formed on the outer or external surface of the member is known as _____
b. A part used with a bolt to fasten two parts together temporarily is called as _____
c. Nuts are generally of _____ and _____ forms.
d. In rectangular key, the width of key is ___D.
e. Riveted joints are _____fastenings.
f. _____ is the distance between the centres of the adjacent rivets in the same row.
g. The keys are made integral with the shaft, by cutting equi-spaced grooves of uniform cross-section are known as_____
h. A spring washer is provided where there are _____ in machinery.
i. Woodruff key is a _____ type of sunk key.
j. The surface between the crest and the root is known as _____ of a thread.

SECTION-B

Q2. Attempt any three questions. **3x10=30**

i. Draw the proportionate sketch of Hexagonal bolt.
ii. Differentiate between caulking and fullering with diagram.
iii. Draw the basic thread forms of a) British Association thread b) American's thread form.
iv. Draw any four types of rivet heads.
v. Discuss the difference between keys and cotters.

SECTION-C

Q3. Attempt any two questions. **2x30=60**

a. Draw the sectional front view and top view of a single riveted, single cover butt joint. Take the diameter of the rivet = 24mm.
b. Draw the front view and side view of hexagonal headed bolt with a hexagonal nut and washer. Take diameter of bolt = 24mm and 96mm long.
c. **Figure 1** show the detail drawings of spigot and socket cottered joint. Assemble all these parts and draw i) Sectional front view ii) Top view iii) Left hand side view.

009

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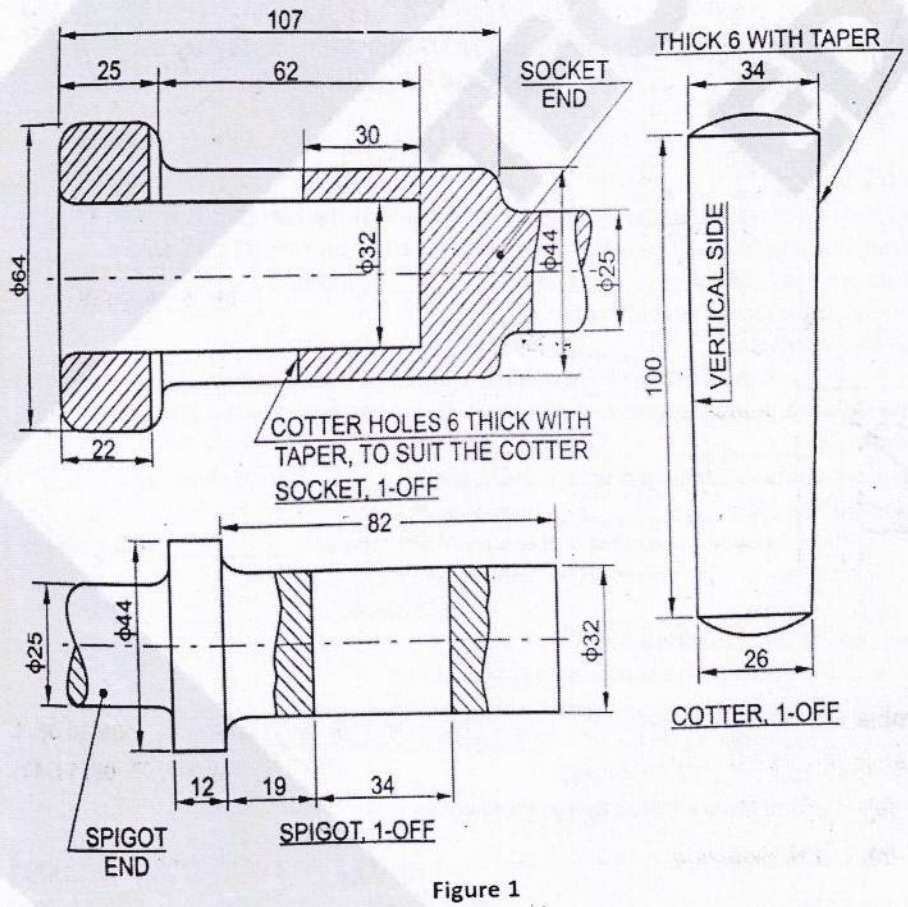

Figure 1