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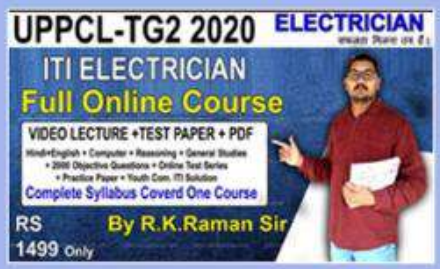

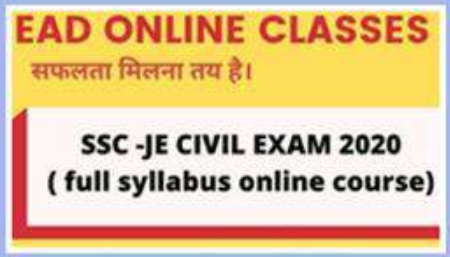

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EAD Question Bank

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About

Mr. R. K. Raman is presently CEO and Managing Director of Engineering Academy Dehradun (EAD), He obtained his B. Tech. from H.N.B. Garhwal University, M. Tech. from SLNIT Sangrur Punjab, More than 40 students completed M. Tech. Thesis under the guidance of Mr. R. K. Raman.

He has involved in teaching since last 10 years in various engineering collage in Dehradun and engineering academy Dehradun.

He has also giving an online platform of technical and not tech education in YouTube as well as in EAD online classes application, where he delivered more than 3K video lectures, most of the lectures are based on the Electrical Stream subjects like; Basic Electrical, Power System, Machine, Power Electronics, Measurement & Instrumentation etc.

By the help of online lectures more than 5K students selected in in different government exams.

Preface

This book has been written for the help of engineering students who wish to seek join state government, central government, PSUs. The book may prove to be of immense value to engineering students also that may test their comprehension of the subject.

This book provides an objective question bank of more than 4500 questions for all electrical subjects as well as electrical & electronics subjects.

The special feature of this book is that explanation to the correctness of certain answer is given for all questions with neat and clear diagrams in simple language.

All the objectives questions are selected from the government examination papers which organized any Indian state board or central board and PSUs; like: ***UPPCL – JE / AE, UKPSC, UPCL – JE / AE, SSC-JE, RRB-JE, ONGC, DRDO, CIL, BARC, DMRC, PGCIL, SAIL, UPRVNL, UJVNL, UKSSSC, LMRC, NMRC, SJVNL, KPTCL – JE, OPTCL – JE, RINL – JE, HPPCL, HPSSC – JE, BTSC, MP – JE, DFCCIL*** *etc. this book will help the students to preparation accordingly.*

This book is primarily designed for diploma & undergraduate students of electrical engineering or electrical & electronics engineering, study of this book will provide balanced coverage of all technical examination patterns. The whole text has been logically organized and spread over 50 objective paper sets with solutions, where more than 20 objective papers are taken from previous exam of govt. organization

We have always strived to provide you with the best study material to make your dream of government job a reality. Regular revision with this book as a guide will surely help you gain the edge over others.

Although every care has been taken to ensure the accuracy, yet some errors might be crept in and the author will be grateful if the same could be brought to their notice.

The author hopes that with these unique features the book will fulfill the genuine requirement of the student community.

R.K. RAMAN
MD & CEO EAD Group
December, 2020

Acknowledgment

I take this opportunity to express my gratitude and thanks to my Family/wife and our EAD (Engineering Academy Dehradun) group of education for his valuable technical suggestions and constant encouragement, without which this book would not have come into existence.

A book of this nature cannot be considered as original. It has been compiled based on the work done by many people who have provided information directly or indirectly (through books publication). It is impossible to list every one of them. Our sincere thanks go to all those helped us in compiling this material. "The originally of this work is claimed only in way of presentation material".

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Contents

EAD Question Bank

PRACTICE PAPER – 01

1. The corona loss on a particular system at 50 Hz is 1 KW/km/phase. What is the corona loss at 60 Hz in KW/km/phase?

a) 0.83
b) 1.0
c) 1.13
d) 1.2

Answer- (c)

$$\frac{P_{60}}{P_{50}} = \frac{(f_{60}+25)}{(f_{50}+25)}$$

$$P_{60} = \frac{(60+25)}{(50+25)} \times \quad P_{50} = \frac{85}{75} \times 1$$

$$P_{60} = 1.13 kw/km/phase$$

2. Which one of the following is employed as a moderator by CANDU type is slow thermal nuclear reactors?

a) Water
b) Heavy water
c) Graphite
d) Beryllium

Answer - (b)

The CANDU (Canadian Deuterium Uranium) is a Canadian pressurized heavy-water reactor design used to generate electric power. In CANDU system Deuterium oxide (heavy water) used as moderator .

3. The space surrounding a charge body, within which the influence of its charge extends, is called

a) Coulomb
b) electric field
c) electric intensity
d) lines of force

Answer: (b)

An electric field is a field or space around an electrically charged object where any other electrically charged object will experience a force.

4. A power station's plant load factor is defined as the ratio of

a) The energy generated to that of maximum energy that could have been generated
b) Minimum load to peak load
c) Minimum load to average load
d) Average load to peak load

Answer: (d)

$$Load\ factor = \frac{Average\ load}{Maximum\ demand}$$

5. If X is the inductive reactance/phase and R is the resistance/phase of a short transmission line, what is the power factor angle of the load for maximum voltage regulation?

a) $\cos^{-1}\frac{X}{R}$
b) $\tan^{-1}\frac{X}{R}$
c) $\cos^{-1}\frac{R}{X}$
d) $\tan^{-1}\frac{R}{X}$

Answer: (b)

Condition for maximum voltage regulation: $\tan^{-1}\left(\frac{X}{R}\right)$ *Maximum voltage occurs at lagging power factor.*

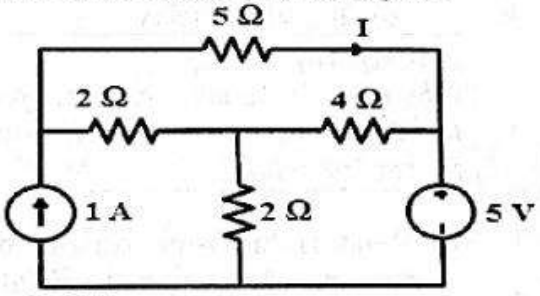
6. For variable heads of near about but less than 30 m, which type of turbines is used in hydro power stations?

a) Pelton
b) Kaplan
c) Francis
d) None of these

Answer: (b)

Kaplan turbine is suitable for low head and it is less than always 30 m.

7. Consider the following circuit: What is the value of current I in the 5Ω resistor in the circuit given in the figure?



a) 0 A
b) 2 A
c) 3 A
d) 4 A

divided by the strength of the external field (B):
$\chi = J / B_0$
Since it is the ratio of two magnetic fields, susceptibility is a dimensionless number. Diamagnetic substances have negative susceptibilities ($\chi < 0$); paramagnetic have greater than zero but less than one ($0 < \chi > 1$) and ferromagnetic substances have positive susceptibilities ($\chi > 0$).

15. For vacuum susceptibility is
a) Infinity
b) Unity
c) Zero
d) None of these

Answer – (c)
For vacuum susceptibility is (χ air) = zero.

16. Polarity of a solenoid can be determined by
a) Use of compass needle
b) Helix rule
c) Cork screw rule
d) Either a or b

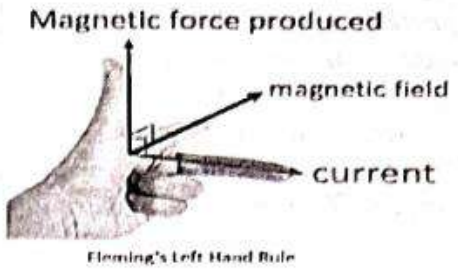
Answer – (d)
Polarity of a solenoid can be determined by Use of compass needle and Helix rule.

17. The Biot-savart's law is a general modification of
a) Coulomb's law
b) Ampere's law
c) Faraday's law
d) Ohm's law

Answer – (b)
The Biot-savart's law is a general modification of Ampere's law.

18. In Fleming's left hand rule thumb always represents direction of
a) Current flow
b) Induced emf
c) Magnetic field
d) Mechanical force

Answer – (d)
Fleming's left hand rule is used to determine the direction of force exerted on a current carrying wire placed in a magnetic field. If the thumb, index finger (along magnetic field) and middle finger (along current) are held mutually perpendicular, then thumb gives the direction of force on the wire.



Fleming's Left Hand Rule

19. MMF of magnetic circuit is analogous to
a) Current
b) Emf
c) Resistance
d) Power

Answer – (b)
MMF of magnetic circuit is analogous to to emf in electric circuit.

20. The daily energy produced in a thermal power station is 720 MWh at a load factor of 0.6. What is the maximum demand of the stations?
a) 50 MW
b) 30 MW
c) 72 MW
d) 720 MW

Answer – (a)

$$Load\ factor = \frac{Average\ load}{Max\ demand}$$

$$Avg\ load = \frac{Unit\ \frac{generated}{day}}{24\ hour}$$

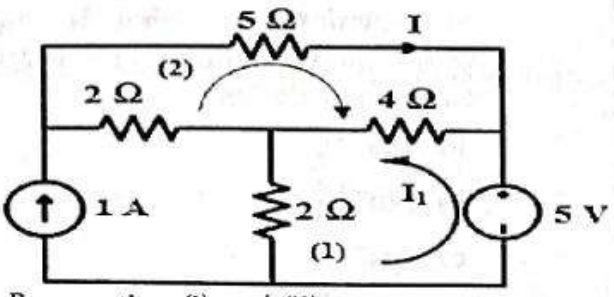
$$= \frac{720}{24} = 30MW$$

$$Max\ demand = \frac{Average\ load}{Load\ factor} = \frac{30}{0.6}$$

$$= \frac{300}{6} = 50\ MW$$

21. In hydro-power stations, what is an enlarged body of water just above the intake and used as a regulating reservoir, called?
a) Spill ways
b) Forebay
c) Reservoir
d) Penstock

Answer: (a)
Apply KVL in loop (1)-
$-5 + 4(I_1 + I) + 2(I_1 + 1) = 0$
$4I_1 + 4I + 2I_1 + 2 = 5$
$6I_1 + 4I = 3$ ---------- *(i)*
Apply KVL at loop (2)
$5I + 4(I + I_1) + 2(I - 1) = 0$
$5I + 4I + 4I_1 + 2I - 2 = 0$
$11I + 4I_1 = 2$ --------- *(ii)*



By equation (i) and (ii)
$33I + 6 - 8I = 6$
$25I = 0$
$I = 0$

8. How many relays are used to detect inter phase fault of a three-line system?
a) One
b) Two
c) Three
d) Six

Answer: (b)
Two relays are used to detect inter phase fault of a three-line system.

9. Which is the main relay for protecting up to 90% of the transmission line-length in the forward direction?
a) Directional over current relay
b) Mho relay
c) Carrier-current protective relay
d) Impedance relay

Answer: (b)
Mho relay is the main relay for protecting up to 90% of the transmission line-length in the forward direction.

10. What is the approximate break down strength of atmospheric air at NTP?
a) 0.3 KV/cm
b) 1.0 KV/cm
c) 3 KV/cm
d) 30 KV/cm

Answer – (d)
Break down strength of air is 30 KV/cm.

11. Electric field inside a hallow metallic charged sphere is
a) Zero
b) Decreasing towards center
c) Increasing toward center
d) None of these

Answer – (a)
Electric field inside a hollow metallic charged sphere is zero.

12. Thermo-couple is based on
a) See beck effect
b) Thomson
c) Joule's
d) None of these

Answer – (a)
Thermo-couple is based on the principle of See beck effect. The See back effect is a phenomenon in which a temperature difference between two dissimilar electrical conductors or semiconductors produces a voltage difference between the two substances. When heat is applied to one of the two conductors or semiconductors, heated electrons flow toward the cooler one.

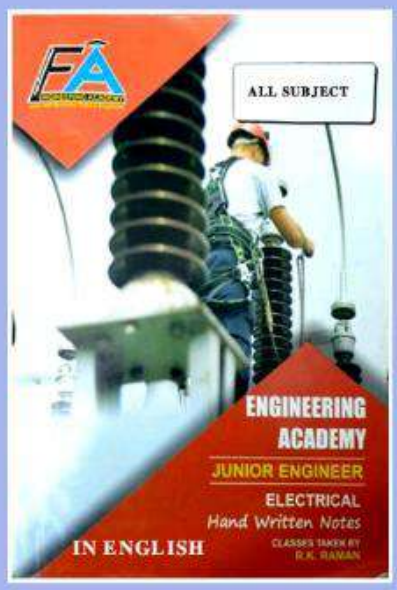
13. Dielectric strength of a material depends on
a) Temperature
b) Thickness
c) Moisture content
d) All of these

Answer – (d)
Dielectric strength of a material depends on all the option which is –
Temperature, Moisture content and Thickness.

14. The magnetic susceptibility of a para-magnetic material is
a) Less than zero
b) Less than one but positive
c) Greater than one
d) Equal to zero

Answer – (b)
Magnetic susceptibility is denoted by the Greek letter chi (χ), is defined as the magnitude of the internal polarization (J)

OTHER OUTSTANDING BOOKS



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