Code No: RT32023 **R13** SET - 1

III B. Tech II Semester Supplementary Examinations, November - 2018

UTILIZATION OF ELECTRICAL ENERGY

(Electrical and Electronics Engineering)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
2. Answering the question in **Part-A** is compulsory
3. Answer any **THREE** Questions from **Part-B**

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PART –A

1	a)	List out types of electric drives with brief explanation of each.	[3M]
	b)	List out modes of transfer of heat with relevant expressions.	[4M]
	c)	Explain the terms MSCP and MHCP	[4M]
	d)	List out the drawbacks of metal filament lamps.	[4M]
	e)	Explain the term Specific Energy Consumption	[4M]
	f)	Define percentage gradient in railways, and what for it is used.	[3M]

PART -B

2	a)	Explain about the different speed torque characteristics of different machines and give their utility in selection for Industrial loads.	[8M]
	b)	List out and explain various speed control methods of 3-phase Induction motors.	[8M]
3	a)	Discuss about the properties of heating elements. Explain about any two types of induction furnaces.	[6M]
	b)	Explain about metal arc welding, submerged arc welding methods with necessary illustrations.	[6M]
	c)	Compare DC and AC welding sets.	[4M]
4	a)	Explain about the following factors used in illumination i. Space-height ratio ii. Utilization factor iii. Maintenance factor iv. Depreciation factor	[8M]
	b)	Explain the procedure to determine the mean spherical candle power from the vertical polar curve.	[8M]
5	a)	State stroboscopic effect. Explain the working of fluorescent tube with neat connection diagram incorporating glow type starter.	[8M]
	b)	Discuss the different interior lighting schemes for controlling distribution of the light emitted by lamps.	[8M]
6	a)	Explain about the following vehicles w.r.t electric traction i) Tramways ii) Trolley buses iii) Diesel traction	[6M]
	b)	Demonstrate the procedure to study the performance of a service at different schedule speeds using simple geometric shaped curves with necessary derivation.	[10M]
7	a)	Deduce the necessary expression to calculate total tractive effort required to run a train on track.	[10M]
	b)	List out and explain the principles of energy efficient motors.	[6M]

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