Annales brainprepa		WWW	.touslesconcours.info		
COMPETITIV	E ENTRANCE EXAMINA	ATION INTO HTTTČ B	AMBILT		
CYCLE:1 st CYCLE					
<u>LEVEL</u> : 1 st	Session: 2014				
<u>OPTION</u>: Electrotechniques					
• Use the Multiple Choice Query	INSTRUCTIONS TO CA	ANDIDATES	Panar (Saction A) and the Minor		
• Use the Multiple Choice Question (MCQ)Answer Booklet to answer questions for the Major Paper(Section A) and the Minor Paper (Section B)					
 Fill in the information required on the cover of the Answer Booklet and on the Answer Page of the MCQ Answer Booklet Use the same Answer booklet to answer questions of the Major Paper (Section A) and (Section B) 					
Do not write or do rough work on the back page of the Answer Page. How to Answer the Test:					
 Each Question has four suggested answers and carries 1mrk Bead each question carefully and select the best answer 					
 Using a pen, write only the letter of the answer you have chosen against the question number on your answer page 					
	PART I: ELECTROT	ECHNIQUES			
<u>QUESTION I</u>					
A phase 6 pole, 400v 50Hz induction motor has a rotor frequency of 3Hz. The					
motor draws a current of 1Am at a power factor of 0.8 lagging. The stator loss					
amounts to 1.2kw of whi	ch 60% is copper los	SS.	<i>Y</i>		
1. What is the percent	tage slip? A) 2%	B) 4%	C) 5% D)		
6%					
2. What is the actual	l speed? A) 1500r	pm B) 750rpm	C) 940rpm D)		
3000rmp					
3. What is motor input power? A) 80Kw B) 70KW C) 15KW D) 30KW					
4. What is the coppe	r loss? A) 729W	B) 830W C) 829	DW D) none of the		
above					
5. What is the mechanical power developed?					
A) 11 991kw	B) 14KW	C)	12.991kw D)		
	2) 1 111 1		_ ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
10KW					
QUESTION II					
Single phase half wave d	iode rectifier supplie	es power to a 2kilo	-ohm resistive load.		

The input AC supply tag has a peak value of 300v. Neglecting forward drop of the diode:

6. The average voltage is: A) 84.5v B) 70.3v C) 95.4v D) 30.76v

- 7. The average curent is: A) 36.1mA B) 40.82mA C) 25.4mA D) 47mA
 8. The power delivered in the load:
 - A) 5000mW B) 3550mW C) 4550mW D) 2500Mw
- 9. The ripple voltage is: A) 215.2v B) 115.4v C) 100.5v D)

220v

10. The emitter of a transistor is generally doped the heaviest because it:

- a) Has to dissipate maximum power
- b) Has to supply the charge carries
- c) Is the first region of the transistor
- d) Must possess low resistance
- 11. In a rectifier larger the value of shunt capacity filter:
 - a) Larger the P.P. value ripple voltage
 - b) Larger the peak current in the rectifying
 - c) Longer the time that current pulse through the diode
 - d) Smaller the DC voltage across the load

12. Avalanche photodiodes are preferred over PIN diodes in optical communication systems because of:

a) speed of operation

- b) Higher sensitivity
- c) Larger bandwidth
- d) Larger power handling capacity
- 13. A J K flip flop is a device to:
 - a) divide the frequency by 2
 - b) divide the frequency by 4

- c) generate waveform of same frequency as that of the shut
- 14. An astable multivibrator:
 - a) Requires a periodic trigger
 - b) Has one stable state
 - c) Is an oscillator
 - d) Produces a non periodic pulse
- 15. Which of the following circuits is sued for the production of delays?
- a) Astable multivibrator
- b) Bistable multivibrator
- c) Monostable multivibrator
- d) Schmitt trigger
- 16. A 555IC timer can be used for the production of delays?
 - a) Monostable Multivibrator
 - b) Astable multivibrator\
 - c) A voltage controlled oscillator
 - d) All of the above
- 17. A J K flip flip is in the toggle condition when.

a)
$$J = 1$$
, $K = 0$, b) $J = 1$, $K = 1$ c) $J = 0$, $K = 0$ d) $J = 0$, $K = 1$

- 18. DTL family employs:
- a) Resistor and transistor
 - b) Diode and transistor
- c) Diode and resistor
- d) Diodes, resistors and transistor
- 19. Boolean algebra is essentially based on:

a) Symbols	b) Logic	c) truth	d) Numbers
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- 20. The feedback path is an OP AMP differentiator consist of:
 - a) Resistor b) a capacitor

c) a resistor and capacitor in series d) a resistor and capacitor in parallel

- 21. Which of the following motors runs from a low DC supply and has permanent poles on it's on its rotor.
 - a) Permanent Magnet DC motor
 - b) Disk DC motor
 - c) Permanent magnetic synchrous motor
 - d) Brush DC motor
- 22. Squirrel cage induction motor is finding increase application in high power servomotor differs from the standard AC induction motor because it has:
 - a) Higher rotor resistor b) Higher power rating
 - c) Motor stator winding d) greater inertia
- 23. A synchronous machine is called a double excited machine because:
 - a) It can be over excited b) it has two sets of rotor poles
- c) It needs twice the normal exciting d) none of the above
- 24. When load on a synchronous motor is increased provided it is:
 - a) Normally excited b) Over excited c) under excited all of the above
- 25. A synchronous motor running with normal excitation adjusted to load increase essentially by:

a) Power factor b) Torque c) Back EMF d) all of the above