Course/Branch :B.E/EEE /	**Year / Semester** :II/III	Format No.	NAC/TLP-07a.13
Subject Code :EE8391	**Subject Name** :Electromagnetic Theory	Rev. No.	02
Unit No :3	**Unit Name** :**Magnetostatics**	Date	30.09.2020

OBJECTIVE TYPE QUESTION BANK

S. No.	Objective Questions (MCQ /True or False / Fill up with Choices)	BTL
1.	Find the magnetic field of a finite current element with 2A current and height 1/2π is **a) 1** b) 2 c) 1/2 d) 1/4	L1
2.	Biot Savart law in magnetic field is analogous to which law in electric field? a) Gauss law b) Faraday law **c) Coulomb's law** d) Ampere law	L1
3.	Find the magnetic flux density when a point from a finite current length element of current 0.5A and radius 100nm. a) 0 b) 0.5 **c) 1** d) 2	L2
4.	For time varying currents, the field or waves will be a) Electrostatic b) Magneto static **c) Electromagnetic** d) Electrical	L1
5.	Calculate the emf when the flux is given by 3sin t + 5cos t a) 3cos t – 5sin t **b) -3cos t + 5sin t** c) -3sin t – 5cos t d) 3cos t + 5sin t	L3
6.	Find the force due to a current element of length 2cm and flux density of 12 tesla. The current through the element will be 5A. a) 1 N **b) 1.2 N** c) 1.4 N d) 1.6 N	L3
7.	The point form of Ampere law is given by a) Curl(B) = I b) Curl(D) = J c) Curl(V) = I **d) Curl(H) = J**	L2

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8.	Find the magnetic field intensity due to an infinite sheet of current 5A and charge density of 12j units in the positive y direction and the z component is above the sheet. a) -6 b) 12k c) 60 **d) 6**	L2
9.	Find the current density on the conductor surface when a magnetic field H = 3cos x i + zcos x j A/m, for z>0 and zero, otherwise is applied to a perfectly conducting surface in xy plane. a) cos x i **b) –cos x i** c) cos x j d) –cos x j	L4
10.	Find the Maxwell equation derived from Faraday's law. a) Div(H) = J b) Div(D) = I **c) Curl(E) = -dB/dt** d) Curl(B) = -dH/dt	L2
11.	The charge build up in the capacitor is due to which quantity? a) Conduction current **b) Displacement current** c) Convection current d) Direct current	L1
12.	Find the electric flux density of a material with charge density 16 units in unit volume. a) 1/16 b) 16t **c) 16** d) 162	L1
13.	Find the electric field when the magnetic field is given by 2sin t in air. **a) $8\pi \times 10^{-7}$ cos t** b) $4\pi \times 10^{-7}$ sin t c) $-8\pi \times 10^{-7}$ cos t d) $-4\pi \times 10^{-7}$ sin t	L2
14.	Find the height of an infinitely long conductor from point P which is carrying current of 6.28A and field intensity is 0.5 units. a) 0.5 **b) 2** c) 6.28 d) 1	L3

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15.	Find the magnetic field intensity of a toroid of turns 40 and radius 20cm. The current carried by the toroid be 3.25A. **a) 103.45** b) 102 c) 105.7 d) 171	L3
16.	Fleming's left hand rule is used to find a)direction of magnetic field due to current carrying conductor b)direction of flux in a solenoid **c)direction of force on a current car¬rying conductor in a magnetic field** d)polarity of a magnetic pole	L1
17.	Find the magnetic field intensity when the magnetic vector potential x i + 2y j + 3z k. a) 6 **b) -6** c) 0 d) 1	L3
18.	When a magnet is in motion relative to a coil the induced e.m.f. does not depend upon **a)resistance of the coil** b)motion of the magnet c)number of turns of the coil d)pole strength of the magnet	L2
19.	The force per unit length of two conductors carrying equal currents of 5A separated by a distance of 20cm in air(in 10^{-6} order) **a) 25** b) 35 c) 40 d) 50	L2
20.	Find the angle at which the torque is minimum. a) 30 b) 45 c) 60 d**) 90**	L3
21.	The magnetic moment of a field with current 12A and area 1.6 units is **a) 19.2** b) 12.9 c) 21.9 d) 91.2	L3

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22.	Find the Lorentz force due to a conductor of length 2m carrying a current of 1.5A and magnetic flux density of 12 units. a) 24 **b) 36** c) 32 d) 45	L3
23.	The electromagnet has 50 turns and a current of 1A flows through the coil. If the length of the magnet circuit is 200 mm, what is the magnetic field strength ? a)2500 AT/m **b)250 AT/m** c)25 AT/m d)2.5 AT/m	L4
24.	The retentivity (a property) of material is useful for the construction of **a)permanent magnets** b)transformers c)non-magnetic substances d)electromagnets	L1
25.	A rectangular magnet of magnetic moment M is cut into two piece of same length, the magnetic moment of each piece will be a) M **b) M/2** c)2 M d)M/4	L2
26.	Very small and positive susceptibility is found in a) Ferromagnetic b) Diamagnetic **c) Paramagnetic** d) Antiferromagnetic	L1
27.	Identify the diamagnetic material. a) Silicon **b) Germanium** c) Silver d) Cobalt	L1
28.	The flux lines of two energised coils overlapping on each other will give **a) Series aiding** b) Shunt aiding c) Series opposing d) Shunt opposing	L2

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29.	Which of the following relations is correct? **a) NI = Sφ** b) NS = Iφ c) Nφ = SI d) NI = S/φ	L2
30.	Ampere turn is equivalent to which element? **a) Sφ** b) S/φ c) φ/S d) S	L2
31.	The uniform magnetic field is a)the field of a set of parallel conductors b)the field of a single conductor **c)the field in which all lines of mag¬netic flux are parallel and equidis¬tant** d)none of the above	L1
32.	What will be the magnetic potential difference across the air gap of 2 cm length in magnetic field of 200 AT/m ? a)2 AT **b)4 AT** c)6 AT d)10 AT	L2
33.	The line integral of the magnetic field intensity is given by a) Turns b) Flux density c) MMF d) **Current element**	L1
34.	The magnetic energy of a magnetic material is given by **a) BH/2** b) B/2H c) H/2B d) B/H	L2
35.	Calculate the emf of a coil with turns 100 and flux rate 5 units. a) 20 b) -20 c) 500 **d) -500**	L3

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36.	The magnetic reluctance of a material **a)decreases with increasing cross sectional area of material** b)increases with increasing cross-sec-tional area of material c)does not vary with increasing cross-sectional area of material d)any of the aboveewwwdsxz	L2