PHYSICS

AAKASH INSTITUTE ENGLISH

Mock Test 31: PHYSICS

Example

1. At the magnetic north pole of the earth 's the values of the horizontal copmonent H and the value the angle of dip θ are

A. $deg30$

B. $deg0$

C. $deg90$

D. $deg60$

Answer: C

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2. At a certain place, the horizontal component B_0 and the vertical component V_0 of the

earth's magnetic field are equal in magnidude.

The total intensity at the place will be

A. B_0

B. $2B_0$

C. $3B_0$

D. $2^{\frac{1}{2}}B_0$

Answer: D

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3. At a place horizontal and vertical components of earth $smag \neq ticfieldareasfollows$BH=1G 5^·` East of north

BV=1G vertically upward

Then inclination and declination are respectively

A. $deg(60)deg(5)$west

B. $deg(30)$` deg(5)west

C.

D. $deg(60)deg(5)$EAST

Answer: B

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4. Lines joining places of equal angle of declination are called

A. Isogonic

B. Isoclinic

C. agonic

D. acoclinic

Answer: A

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5. A magnetic needle is made to vibrate in uniform field H, then its time period is T. If it vibrates in the field of intensity $4H$, its time period will be

A. $2T$

B. $\frac{T}{2}$

C. $\frac{T}{4}$

D. T

Answer: B

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6. The magnetic needle of a tangent galvanometer is deflected at an angle 30° due to a magnet. The hoeizontal component of

earth's magnetic field $0.34 \times 10^{-4}T$ is along the plane of the coil. The magnetic intensity is

A. $1.96X10^{-4}T$

B. $5.9X10^{-4}T$

C. $5.9X10^{-5}T$

D. $5.9X10^{5}T$

Answer: A

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7. If a magnet of pole strenght m is divided into four parts such that the length and which width of each part is half that of initial one, then the pole strength of each part will be

A. 2T

B. T

C. $\frac{T}{2}$

D. $\frac{T}{4}$`

Answer: C

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8. The angle between the magnetic meridian and geographical meridian is called

A. Angie of dip.

B. Angle of decination

C. Magnetic moment

D. Power of magnetic feld

Answer: B

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9. When the N-pole of a bar magnet points towards the south and S-pole towards the north, the null points are at the

A. Magnetic axis

B. Magnetic centre

C. Normal bisector of magnetic axis

D. N and S poles

Answer: A

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10. Which of the following statement is incorrect?

A. A short magnet is used in a tangent galvanometer since a long magnet would be heavy and may not easily move

B. Measurement with the tangent galvanometer will be more accurate when the dellection is around deg45

C. A tangent galvanometer cannot be used in the polar region

D. While taking reading of tangent galvanometer the plane of the coil must be set at right

Answer: D

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11. A ship is sailing due west according to Mariner's compass . If the declination at the place is 17° west , what should be direction of ship ?

A. Making an angle of deg83 West of magnetic North

B. Making an angle of deg83 East of magnetic North

C. Making an angle of deg83 West of magnetic South

D. Making an angle of deg27 East of magnetic South

Answer: A

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12. The values of apparent angles of dip in two places measured in two mutually perpendicular planes are 30° and 45°. Determine the true angle of dip at the place

A. $\tan^{-1}(4)$

B. $\cot^{-1}(4)$

C. $\tan^{-1}(2)$

D. $\tan^{-1}\left(\frac{1}{2}\right)$

Answer: D

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13. The true value of dip at a place is 30°. The verticle plane carrying the needle is tumed

through 45° from the magnetic meridian. Calsulate the apparent value of dip.

A. $\tan^{-1}\left(\left(\frac{3}{2}\right)^{\frac{1}{2}}\right)$

B. $\cot^{-1}\left(\left(\frac{5}{3}\right)^{\frac{1}{2}}\right)$

C. $\tan^{-1}\left((3)^{\frac{1}{2}}\right)$

D. tan^(-1)((2/3)^(1/2))'

Answer: D

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14. When a current of 1A passes through a tangent galvanometer, angle of defection is deg 60. When current is reduced to 0.5A, then the new angle of deflection will be

A. $deg30$

B. $deg45$

C. $deg60$

D. $deg15$

Answer: A

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15. The magnetism of a bar magnet is due to

A. The spin motion of electron

B. Earth

C. Pressure of big magnet inside the earth

D. Cosmic rays

Answer: A

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16. The only property possessed by ferromagnetic substance is

A. Susceplibility

B. Directional property

C. Hysteresis

D. Attracting magnetic substances

Answer: C

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17. Which of the following statement is incorrect about hysteresis?

A. This effect is common to all ferromagnetic substances

B. The hysteresis loop area is proportional to the thermal energy developed per unit volume of the material

C. The shape of the hysteresis loop is characteristic of the material

D. The hysteresis loop area is independent of the energy developed per unit volume of the material

Answer: D

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18. For an isotropic medium B, μ, H and M are related as (where B, μ_0, H and M have their usual meaning in the context of magnetic material

A. $B - M = \mu H_0$

B. M=mu_0(2H+B)

C. $H = \mu_0(2M + B)$

D. $B = \mu_0(M + H)$

Answer: D

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19. The variation of magnetic susceptibility (χ) with absolute temperature T for a ferromagnetic material is

A. 

B. 

C. 

D. 

Answer: A

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20. The coercivity of a bar magnet is $120A/m$. It is to be demagnetised by placing it inside a solenoid of length $120cm$ and number of

turns 72. The current (in A) flowing through the solenoid is:

A. 4A

B. 2A

C. 1A

D. zero

Answer: B

21. Relative permittivity and permeability of a material are ε_r and μ_r, respectively. Which of the following values of these quantities are allowed for a diamagnetic material ?

A. $\varepsilon_r = 0.5, \mu_r = 1.5$

B. $\varepsilon_r = 1.5, \mu_r = 0.5$

C. $\varepsilon_r = 0.5, \mu_r = 0.5$

D. $\varepsilon_r = 1.5, \mu_r = 1.5$

Answer: B

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22. Needles $N_1, N_2,$ and N_3 are made of a ferromagnetic, a paramagnetic and a diamagnetic substance respectively . A magnet when brought close to them will

A. Attract N_1 and N_2 strongly but repel N_3

B. Attract N_1, strongly. but repel N_2, and N_3

, weakly

C. Attract N_1, strongly, N_2 weakly and repel

N_3 weakly

D. Attract all three of them

Answer: C

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23. The material suitable for making electromagnets should have

A. High retentivity and high coercivity

B. Low retentivity and low coercivity

C. High retentivity and low coercivity

D. Low retentivity and high coercivity

Answer: D

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