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Score: 30/50 (60.00%)

Code: 0407

1. What is the expanded form of  $(a+b)^2$ ?

- A)  $a^2 + 2ab + b^2$  B)  $a^2 - 2ab + b^2$   
 C)  $a^2 + 2ab - b^2$  D)  $(-a^2 - 2ab + b^2)$  (Incorrect)

C) 3 W

D) 1.2 W

2. What is the value of  $(a^5)^7$ ?

- A)  $a^{35}$  B)  $a^{12}$  (Incorrect)  
 C)  $a^2$  D)  $a^{22}$

9. Which is equal to electric power?

- A)  $R^2 I$  watts B)  $I^2 R$  watts (Correct)  
 C) RI D) IRA

3. What is the value of  $5x^4 / 5x^3$ ?

- A)  $5x$  (Incorrect) B)  $5x^2$   
 C)  $x$  D)  $5x^4 / x^3$

10. Which is the example for statically induced emf?

- A) Generator B) Motor  
 C) Transformer (Correct) D) Refrigerator

4. What is the length of arc of a sector, whose radius is 15 cm and angle is 40 Degree?

- A) 9.75 cm B) 9.8 cm  
 C) 10.60 cm D) 10.4 cm (Correct)

11. Which state of equilibrium's example is A cone resting on its tip?

- A) Stable B) Neutral (Incorrect)  
 C) Unstable D) Horizontal

5. What is the area of a circular surface if the radius is 14 cm?

- A) 615.44  $\text{cm}^2$  (Correct) B) 614.5  $\text{cm}^2$   
 C) 612.25  $\text{cm}^2$  D) 612.44  $\text{cm}^2$

12. Which is thermosetting plastic?

- A) Vinyl polymers B) Polystyrenes  
 C) Celluloid D) Melamine resins (Correct)

6. What is the area of the circle if the radius is 10 cm?

- A) 314  $\text{cm}^2$  B) 31.4  $\text{cm}^2$   
 C) 30.4  $\text{cm}^2$  D) 3.14  $\text{cm}^2$  (Incorrect)

13. What is the young's modulus if a wire of 2m long, 0.8  $\text{mm}^2$  in cross section increases its length by 1.6 mm on suspension of 8 kg weight from it?

- A) 1.25  $\text{kg/mm}^2$  (Incorrect) B) 12.5  $\text{kg/mm}^2$   
 C) 125  $\text{kg/mm}^2$  D) 12500  $\text{kg/mm}^2$

7. What is the resistance?

$I = 11.5$  Amps  
 $V = 380$  Volts  
 $R = \underline{\hspace{2cm}}$  Ohms

- A) 13 ohms B) 23 ohms  
 C) 33 ohms (Correct) D) 43 ohms

14. What is an over estimate?

- A) When an estimate is exceeded to actual estimate  
 B) When an estimate is fell short of the actual estimate (Incorrect)  
 C) When an estimate perfectly matches the actual estimate  
 D) No work started as per estimate

8. What is the filament resistance if a 6 volt bulb draws a current of 0.5 Amps?

- A) 12 W (Correct) B) 10 W

15. Which IE rules are to be verified on completion of wiring on any new installation?

- A) IE Rules, 1956 B) IE Rules, 1960 (Incorrect)  
 C) IE Rules, 1961 D) IE Rules, 1967

16. Which affects the centre of gravity of the object

- A) Weight B) Mass

C) Density

D) Shape (Incorrect)

17. What is the name of the point at which all the weight of the body concentrated?

A) Initial point

**B) Centre of gravity (Correct)**

C) Centroid

D) Central point

18. What is the centre of gravity of a right circular cone from its base?

A)  $h/2$

B)  $h/3$

**C)  $h/4$  (Correct)**

D)  $h/5$

19. What is the centre of gravity of a semi circle of diameter 12 cm?

A) 2.24 cm

**B) 2.54 cm (Correct)**

C) 3.25 cm

D) 2.75 cm

20. What is the value for specific heat of water

A) 4

B) 3

C) 2 (Incorrect)

**D) 1**

21. Which instrument is used to measure temperatures of red hot metals up to 3000 Degree C?

**A) Radiation pyrometer (Correct)**

B) Thermoelectric pyrometer

C) Bimetal thermometer

D) Alcohol thermometer

22. What is term used for 2 x linear expansion?

A) Co-efficient of friction

B) Co-efficient of linear expansion

**C) Co-efficient of superficial expansion (Correct)**

D) Co-efficient of cubical expansion

23. What is term called for 3 x linear expansion?

A) Co-efficient of friction

B) Co-efficient of linear expansion (Incorrect)

C) Co-efficient of superficial expansion

**D) Co-efficient of cubical expansion**

24. How much quantity of heat is required to raise the temperature of 300 grams of copper (sp.heat 0.092 cal/gram) from 25 Degree C to 75 Degree C in Kcal?

A) 138 Kcal

**B) 1.38 Kcal (Correct)**

C) 207 Kcal

D) 2.07 Kcal

25. Which one is a poor heat insulator?

**A) Glass**

B) Cork (Incorrect)

C) Rubber

D) Saw dust

26. What are the various stages of heat treatment?

A) Heating, Cooling and Quenching

B) Quenching, Cooling and Heating

**C) Heating, Soaking and Quenching (Correct)**

D) Soaking, Quenching and Cooling

27. What is colour of a metal piece when heated to 250 Degree C while doing the tempering process?

A) Blue

**B) Brown**

C) Purple (Incorrect)

D) Pale

28. What is the mechanical advantage, if a load of 1000 kg is lifted by a simple machine and effort applied is 250 kg?

A) 6

B) 8

C) 3

**D) 4 (Correct)**

29. What is the efficiency of a simple screw jack having velocity ratio is 314.2 and mechanical advantage is 220?

A) 0.6

B) 0.65

**C) 0.7 (Correct)**

D) 0.75

30. What is the distance of the load from the fulcrum called?

A) Effort arm

**B) Load arm (Correct)**

C) Power arm

D) Effort

31. Which is example for first order lever?

A) A wheel barrow

**B) A pair of scissors (Correct)**

C) Fire tongs

D) Lime squeezer

32. Which is example for second order lever?

A) Common balance

B) A pair of scissors

**C) Bottle opener (Correct)**

D) Human forearm

33. What is the mass if the density of a body is  $7.6 \text{ g/cm}^3$  and its volume is  $25 \text{ cm}^3$ ?

**A) 190 grams (Correct)**

B) 200 grams

C) 210 grams

D) 220 grams

34. What is the specific gravity of the metal, if it weighs 6.5 kgf in air and 3.5 kgf in water?

A) 6.166

B) 3.166

**C) 2.166 (Correct)**

D) 1.166

35. Which property of material enables to formation of permanent deformation without fracture?

A) Elasticity

**B) Plasticity (Correct)**

C) Ductility

D) Brittleness

36. What is the carbon percentage in low carbon steel?

- A) 0.02% to 0.03%      **B) 0.15% to 0.25%**  
C) 0.25% to 0.50% (Incorrect)      D) 0.50% to 1.50%

37. What is the area of a square whose side is 18 cm?

- A) 26 cm<sup>2</sup>      B) 36 cm<sup>2</sup>  
C) 72 cm<sup>2</sup>      **D) 324 cm<sup>2</sup> (Correct)**

38. What is the diagonal of a square plate whose side is 28 cm?

- A) 39.29 cm      B) 39.39 cm (Incorrect)  
C) 39.49 cm      **D) 39.59 cm**

39. What is the area of a sector of a circle of radius 5 cm and its angle is 96 Degree?

- A) 20.39 cm<sup>2</sup>      **B) 20.93 cm<sup>2</sup> (Correct)**  
C) 20.89 cm<sup>2</sup>      D) 20.98 cm<sup>2</sup>

40. What is the total surface area of a cylinder having radius 2 metres and height 5 metres?

- A) 86 sq.metre (Incorrect)      **B) 88 sq.metre**  
C) 90 sq.metre      D) 92 sq.metre

41. What is the term, if an article is purchased?

- A) Selling price      **B) Cost price (Correct)**  
C) Margin price      D) Discount price

42. How the years is denoted in simple interest calculations?

- A) P (Incorrect)      B) I  
**C) n**      D) r

43. How the profit / gain is expressed?

- A) Rs. (Incorrect)      B) \$

- C) %      D) \*

44. What is the selling price, if the profit is 5% for a computer table bought at Rs.1150/- with Rs.50/- as a transport charge?

- A) 1160      B) 1620  
C) 1060 (Incorrect)      **D) 1260**

45. What is called if a body does not change its position with respect to its surroundings?

- A) Body at motion      **B) Body at rest (Correct)**  
C) Speed      D) Velocity

46. What is the equivalent unit for 1 horse power in metric system?

- A) 75 kg.m/sec (Correct)**      B) 76 kg.m/sec  
C) 77 kg.m/sec      D) 78 kg.m/sec

47. What is the square root of 0.017?

- A) 0.001      **B) 0.13 (Correct)**  
C) 0.00001      D) 0.000001

48. What are fundamental units?

- A) Length, Mass, Volume      **B) Length, Mass, Time (Correct)**  
C) Length, Mass, Area      D) Length, Pressure, Volume

49. What denotes letter M in MKS system?

- A) Mile      **B) Meter (Correct)**  
C) Millimeter      D) Micron

50. Simplify:  $(17.49 \times 5.2) / (6.5)$

- A) 13.69      B) 13.79  
C) 13.89 (Incorrect)      **D) 13.99**