

QUESTION PAPER FOR WRITTEN EXAMINATION FOR POST OF
SENIOR INSTRUCTOR (MECHANICAL) (EX-CADRE)
[GRADE PAY (GP) Rs.4600/- (VI PC) / LEVEL 7 (VII PC)] FOR
TECHNICAL TRAINING CENTRE, ICF

Date of Examination: 07-02-2018

Duration: 3 Hours
Maximum Marks: 100

Instructions to candidate;

1. Question paper consists of Section 'A' and Section 'B'
 2. Section 'A' consists of 25 Objective Type Questions which are compulsory. Each Objective Type Question carries 2 Marks. There is no Negative Mark for Wrong Answer to Objective Type Question. The Objective Type Questions have to be answered in Answer Sheet.
 3. Section 'B' contains Descriptive Type Questions. Each Question in Section 'B' carries 10 Marks. Any 5 Questions have to be attempted from Section 'B'. The Marks are indicated against each Question.
 4. The candidate is instructed not to leave any identification Mark/Sign in the Answer Booklet which may reveal his/her identity. Any distinguishing Mark(s) made by the Candidate on the Answer Booklet will render the Answer Booklet invalid for evaluation.
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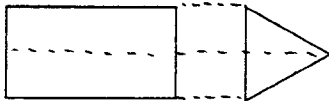
Section 'A'

(25 x 2 Marks = 50 Marks)

1. To use an AC motor in a DC circuit, which equipment would be required additionally?

(a) Inductor (b) Capacitor (c) Rectifier (D) Inverter

2. Consider the following orthogonal projections of an object.



This object is a

(a) Tetrahedron (b) Conical Cylinder (c) Prism (d) Trapezium

3. Woolen clothes keep the body warm in winter because –

(a) Wool is a bad conductor of heat (b) Wool is a good conductor of heat

(c) Wool increases body temperature (d) wool decreases body temperature

4.. In SI system, unit of stress is

(a) Kg/cm² (b) N (c) N/ m² (d) Watt

5. What is the purpose of turbo charging a diesel engine?

(a) Increase power of engine by burning more

(b) Increase the fuel injection and rpm

(c) Increase exhaust gas temperature to increase thermal efficiency

(d) Increase inlet air so that engine fuel efficiency and power to weight ratio increases.

6.A Galvanometer (G) measures up to 100 mA current. It is to be converted to a Voltmeter to measure up to 100 volts. What is required to be done?

- (a) Add 100 resistance in series with G
- (b) Add 1000 resistance in series with G
- (c) Add 1 resistance in parallel with G
- (d) Add 0.1 resistance in parallel with G

7. What is the common between Rockwell, Brinell and Shore? They pertain to

- (a) Surface finish
- (b) Heat treatment
- (c) Metal turning
- (d) Hardness

8. Which of the following information is NOT contained in engineering drawing?

- (a) Tolerances
- (b) Material composition
- (c) Surface finish
- (d) All these are included in engineering drawing

9. No Go Ring Gauge will have diameter based on _____ diameter of the component.

- (a) Minimum tolerance diameter
- (b) Maximum tolerance diameter
- (c) Normal diameter
- (d) Average diameter

10. The materials having same elastic properties in all directions are called

- (a) Ideal material
- (b) uniform material
- (c) Isotropic material
- (d) Practical material

11. Two bulbs are rated 100W, 220 V each. If these bulbs are connected in series to the mains supply, 220 V, the total power consumed by both the bulbs would be

- (a) 25 Watts
- (b) 50 Watts
- (c) 100 Watts
- (d) 200 Watts

12. What is the ratio of angular speed of second's needle and hour's needle of a clock?

- (a) 1:60
- (b) 60:1
- (c) 3600:1
- (d) 720: 1

13. A rectangular garden has an area of 48 sq.m and perimeter of 28 m. What is the length of its diagonal.

- (a) 8 m
- (b) 10 m
- (c) 12.5 m
- (d) 14.14 m (approx.)

14. The process of "Upsetting" pertains to

- (a) Casting
- (b) Forging
- (c) Turning
- (d) Milling

15. Shear stress theory is applicable to

- (a) ductile materials
- (b) brittle materials
- (c) elastic materials
- (d) plastic materials

16. The unit of young's modulus is

- (a) kg/cm^2 (b) kg/cm (c) mm/mm (d) kg

17. Cyaniding & nitriding are two methods of

- (a) Hardening (b) Case Hardening (c) Tempering (d) Normalising





18. S 1302 will be raised for

- (a) Drawal of materials for stores
(b) Sending the scrap material to stores
(c) Procurement of non-stock items
(d) Procurement of stock items

19. In submerged arc welding, the arc is produced between

- (a) a bare metal ^{electrode} and work piece
(b) a tungsten electrode and work piece
(c) a carbon electrode and work piece
(d) any type of electrode can be used

20. Graphical representation of single bevel butt weld with broad root face

- (a)  (b)  (c)  (d) 

21. If the diameter of electric conductor is reduced to half the

- (a) The resistance will be reduced to half
(b) The resistance will be increased to double
(c) The resistance will be reduced to one fourth
(d) The resistance will be increased to four times

22. Filler material is used in

- (a) Seam welding (b) Spot welding (c) Projection welding (d) Gas welding

23. Maximum no. of days of Child Care Leave that can be availed by a women employee in her service is

- (a) 730 days (b) 365 days (c) 180 days (d) None of the above

24. Hospital leave granted to a non-Gazetted Rly. Servant should not exceed a total of when combined with other leave.

- (a) 24 months (b) 28 months (c) 12 months (d) 18 months

25. Welfare officers are to be appointed, if organization is engaging _____ or more employees.

- (a) 500 (b) 250 (c) 600 (d) 750

Section 'B'

(5 X 10 Marks = 50 Marks)

1. What are the common defects found in welding? Suggest ways to improve welding quality in ICF.
2. Describe ERP. What advantages have accrued to ICF on account of the introduction.
3. Describe the layout of Shop 19 with flow process chart for production of LHB Shell .
4. (a) Write a note on "Official Language Implementation Committee". (4 marks)
(b) List out documents under Section 3(3) of Official Language Act 1963, which are required to be in bilingual? (6 marks)
5. Write short notes on
 - (a) Employees Compensation Act
 - (b) Difference between hardening and tempering
6. (a) A Technician Gr.II has completed the job in 200hrs and he earned 49.5%. Hourly rate is Rs.38.50/-. Calculate **Time saved** , **Allowed Time** and **Incentive payable** for the particular employee? (5 marks)
(b) A rectangular sheet of metal measures 8 cm by 6 cm. Four quadrants of circles each of radius 2 cm. are cut away at corners. Find the area of remaining portion. (5 marks)
7. Describe the process of making coil springs in ICF with suitable flow diagram. What is the advantage of air spring over the coil spring.
