MODEL QUESTIONS FOR COMPASSIONATE APPOINTMENT FOR THE POST OF JR. ENGINEER (ELECTRICAL) IN KHARAGPUR WORKSHOP

Time : 2 ½ Hours   Full Marks: 85

PART: A

1. **Name the following:**   (1x5=5 Marks)
   i)   Minister of State Railways (Any one)
   ii)   Who invented Electric Bulb?
   iii)   Vice President of India.
   iv)   Zonal Headquarters of North Central Railway.
   v)   Capital of South Africa.

2. **Fill in the Blanks**   (1x5=5 Marks)
   i)   Jabalpur is situated on the banks of river…………………………
   ii)   Razia Sultan belonged to the ………………… Dynasty.
   iii)   Ustad Allarakha is famous ………………… player
   iv)   Indian Military Academy is situated in …………………………
   v)   The Vice President of USA is……………………………

3. **Write Short note on any one of the following**(5 Marks)
   i)   Kyoto Protocol.
   ii)   Present Economic Recession
   iii)   Singur

4. **Correct the following sentences:**   (1x5=5 Marks)
   i)   One of my friends are going to Australia for vacation.
   ii)   The beggar told the shopkeeper "I am very hungry"
   iii)   The three friends goes to the market every day.
   iv)   Ravi is a M.A. in Sanskrit.
   v)   Prashant met an one-eyed beggar in the market.

5. **Fill in the Blanks**   (1x5=5 Marks)
   i)   The coach gave me…………………… useful tip.
   ii)   I prefer having coffee ……………………… tea.
   iii)   We should learn to adjust …………………….. the circumstances.
   iv)   My friends congratulated me…………………… my success.
   v)   The dog fell ……………… the river.

6. **Write a composition on any one of the following (within 300 words) 10 marks.**
   i)   Television – A boon or a bane.
   ii)   If I were the Prime minister of India.
   iii)   Indian Railways.

7. **Write an application to your Principal for granting permission to be absent from Institute for one week.**   (5 Marks)

8. **Expand the following**   (1x5=5 Marks)
   i)   MOSFET
   ii)   IGBT
   iii)   EMF
   iv)   SMPS
   v)   PIV

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9. **Fill in the blanks**   (1x5=5 Marks)
   i)   ……………………. Motor should never run on no load condition.
   ii)   Pyrometer is used for measurement of ………………………..
   iii)   IC 555 is used for a ……………………circuit
   iv)   One Kilobytes is equal to ………………………. Bytes.
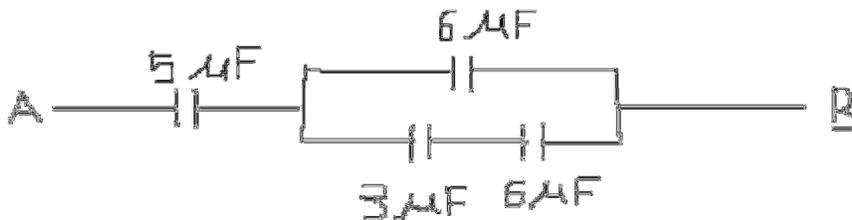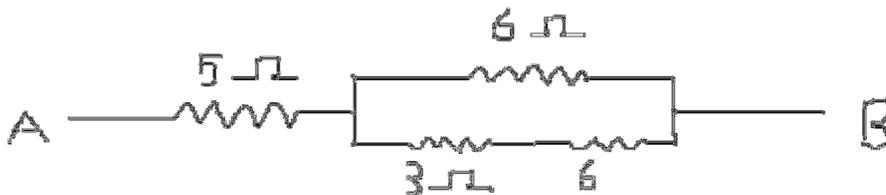   v)   Mho is a unit of ……………………………..

10. **Write short note on any two of the following** (2x5=10 Marks)
    i)   Thyristor.
    ii)   Non-conventional Energy sources.
    iii)   Synchronous motor.
    iv)   Darlington Pair.
    v)   Freewheeling diode.

11. **Answer any two of the following**   (2x10=20 Marks)
    i)   Explain the working of a Television set.
    ii)   What are the various types of braking of an induction motor. Explain with diagrams.
    iii)   Explain with diagram a VVVF drive control.
    iv)   What are the various types of Circuit breakers? Explain with their merits and demerits.
    v)   Explain with diagram the working of a DC Chopper circuit.

12. **Calculate the following**   (5 Marks)

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MODEL QUESTIONS FOR COMPASSIONATE APPOINTMENT FOR THE POST OF JR. ENGINEER (ELECTRICAL) IN KHARAGPUR WORKSHOP

Time : 2 ½ Hours   Full Marks: 85

1. **General knowledge & current affairs**-

   Answer any ten questions.   10 marks

   i.   What is the function of fuse in an electric circuit?
   ii.   What is the function of surge arrestor in an electric circuit?
   iii.   Which is the longest Railway platform in the world?
   iv.   What is the name of longest distance run train which runs between Jammu to Kanyakumari?
   v.   In which state Bandipur National park is located?
   vi.   Who was the first Indian girl to register a win in Wimbledon?
   vii.   Name the first Indian to cross seven important seas by swimming
   viii.   Who was the first president of Indian Republic?
   ix.   Name the first women president of the republic of India.
   x.   Who is the present minister of Railways?
   xi.   Who is the president of USA?
   xii.   Who are the authors of the books Discovery of India, My experiment with truth, Wings of fire, Mahabharata, Das Capital?
   xiii.   Name the biggest and smallest continents of the world
   xiv.   Who invented Railway Engine & who invented Dynamite?
   xv.   What is the name of Indian national animal Indian national Bird?

2. **General English:**   10 marks

   Write within 200 words about your views regarding role of Indian Railways in socio economic development of the country.

3. **Technical subject:**   65 marks

   A. Answer any 16 questions, each question carries 2 marks.

   i.   What are the three fundamental quantities of an electrical circuit and how they are related to each other by a law, also state the low.
   ii.   What is semiconductor diode & where it is used?
   iii.   What is optic fiber & what is the principal of transmission of light through optic fiber cable.
   iv.   What is photo diode and where it is used?
   v.   What is zener diode & where it is used?
   vi.   What is sampling theorem & where it is applied?
   vii.   What do you mean by CRT, LED, LCD ? what is the basic difference between LED & LCD.
   viii.   What is the main difference between decimal system of numbering and Binary system of numbering? What is the binary equivalent of the decimal number-8?
   ix.   What do you mean by BIT, BYTE, kbps, mbps?
   x.   What is logic gate & how many types of basic logic gates are there and name those.

xi.   How the range of a voltmeter can be extended?
xii.   What is a multi meter & where it is used.
xiii.   What is digital voltmeter & what is the difference between analog & digital multi meter?
xiv.   What is the principle of a CT scanner?
xv.   What is a decade counter?
xvi.   Draw the logic gate for AND, OR & NOT and write the truth table.
xvii.   What is the function of Rectifier & Filter in a circuit.

B.   Answer all questions

i.   Draw the diagram of a full wave bridge rectifier to get pulsating DC output from
        AC supply.   10 marks
ii.   Draw the diagram of a filter circuit. What different types of filters are in use in
        communication cct.   10 marks
iii.   What is modem? What do you mean by AM, FM & PCM?   10 marks
iv.   What is multiplexing & what do you mean by TDM?   3 marks

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Time : 2 ½ Hours   Full Marks: 85

1.   **General Knowledge & Current affairs:**   (1x10=10 Marks)
   i)   What is the function of choke coil in an electric circuit?
   ii)   What is the function of surge arrestor in an electric circuit?
   iii)   Which is the longest Railway Platform in the world?
   iv)   How may Railway Zones are there in Indian Railways?
   v)   In which state Darjeeling is located?
   vi)   Who was the first president of Indian Republic?
   vii)   Who was the first Indian girl to register a win in Wimbledon?
   viii)   Name the first Indian to cross seven important seas by swimming.
   ix)   Name the first women president of the Republic India?
   x)   Who is the present Minister of Railway?
   xi)   Who is the Chief Minister of West Bengal?
   xii)   Who are the authors of the books "Discover of India" "My experiment with truth" "Wings of fire"" Mahabharatha" "Das Capital"
   xiii)   Name the biggest and smallest continents of the world.
   xiv)   Who invented Railway Engine & who invented Dynamite?
   xv)   What is the name of Indian national animal & Indian National bird

2. General English   (10 Marks)
   i)   **Write the Synonym**
            A) Dwindle
            B) Efface
            C) Infirmity

   ii)   **Write the Antonym**
            A) Compose
            B) Monetary
            C) Hamper
   iii)   **Correct the sentence**
            A) I can't come tonight <u>I will visit/I'm visiting</u> my in-laws.
            B) Next month, the National Theatre <u>shall put on /are putting on</u> a new production of Hamlet.
            C) According to the programme, the show <u>starts/started</u> at 9 o'clock prompt.
            D) Under no <u>situations/circumstances</u> will I allow such a thing.

3. Technical subject: (65 Marks)
   A. Answer all 15 questions, each question carries 2 marks.
        i)   What is semiconductor diode & where it is used?
        ii)   What are the three fundamental quantities of an electrical circuit and how they are related to each other by a law & state the law.
        iii)   What is optic fiber & what is the principle of transmission of signal through optic fiber cable.
        iv)   What is photo diode and where it is used?
        v)   What is zeener diode & where it is used?
        vi)   What do you mean by CRT,LED & LCD?
        vii)   What is binary system of numbering? How it differs from decimal system?

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viii) What is the binary equivalent of the decimal number 10?

ix) What to do you mean by BIT, BYTE, Kbps, Mbps?

x) What is logic gate & how many types of basic logic gates are there and name those"?

xi) What is the operating principle of an ammeter & voltmeter? How the range of a voltmeter can be extended?

xii) What is a millimeter & where it is used?

xiii) What is digital voltmeter & what is the difference between Analog & Digital multi meter?

xiv) Draw the logic gate for AND, OR & NOT and write the truth table for AND & OR gate.

xv) What are Rectifier, Filter & SCR.

B. **Attempt all questions.**

i) Draw the diagram of a filter circuit. What different types of filters are used in communication circuit.   10 marks

ii) What is modulation, demodulation & modem?   05 marks

iii) What do you mean by AM.FM,PCM,TDM & Multiplexing?   05 marks

iv) Draw the circuit diagram of an Amplifier using a transistor.   05 marks

v) What do you mean by Computer? What are basic elements of a computer system.
                                                                                     05 marks

vi) What do you mean by RAM,ROM,EPROM? What do you mean by LAN,WAN & INTERNET?   05 marks

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MODEL QUESTIONS FOR COMPASSIONATE APPOINTMENT FOR THE POST OF JR. ENGINEER (MECHANICAL) IN KHARAGPUR WORKSHOP

Time : 2 ½ Hours   Full Marks: 85

Answer the followings: (1x10=10 marks)

1. a) Who is the Sports Minister of India?
   b) Who has won the gold medal in Badminton(Women's singles) in CWG-2010.
   c) Who has whon the gold medal in Lawn Tennis in CWG 2010?
   d) What is the unit of measuring frequency of sound?
   e) How many zones are there in Indian Railways? Name two new zones of Erstwhile S.E.Railway?
   f) Who invented Diesel Engine?
   g) Write the full name of "Gandhiji"
   h) Who is the author of "Discovery of India"
   i) What is the full form of HIV?
   j) Whose birth day is celebrated as Teachers Day?

2. **Write a paragraph on a "Rail Accident"**   10 marks
3. **Draw the following threads and show their angles of thread**   **(1x3=3)**
   a) BSW thread   b)   Metric thread   c)   ACME thread
4. Draw a super gear and show it Addendum, Dedendum,Dependum,Pitch circle dia, C.P & width of tooth.   (2+5=7)
5. Write full forms of the followings: (1x10=10)
   a)   BHP b)   TIG c)   MIG d)   SMAW   e)   NDT f)   RTI
   g)   BHN h)   ISO i)   RITES   j)   CLW
6. Tick the correct Answer: (1x10)
   i)   The most important are of Aluminium is
           a) Calamine   b)   Galena   c)   Bauxite   d)   Calcite
   ii)   Which of the following is the best conductor of Electricity?
           a) Rain water   b)   Sea water   c)   Boiled water d)   Distilled water
   iii)   The gas used to extinguish fire is
           a) Neon   b)   Nitrogen   c)   Carbon dioxide   d)   Carbon Monoxide
   iv)   Which of the following is used as Lubricant?
           a) Graphite b)   Silica c)   Diamond   d)   Iron oxide
   v)   Galvanized iron sheets have a coating of
           a) Tin   b)   Lead c)   Zinc d)Chromium
   vi)   Brass is an alloy of
           a)   Nickel and copper   b)   Zinc and copper   c)   Nickel and zinc
           d)   Nickel and silver
   vii)   Which of the following ores does not contain iron?
           a) Hematite b)   Magnetite   c)   Limonite   d)   Cassiterite
   viii)   The element required for solar energy conversion is
           a) Germanium   b)   Silicon   c)   Uranium   d)   Selenium
   ix)   The purest form of iron is
           a) Steel   b)   Cast iron   c)   Lead d)   Tin.

7. Write the formulas to calculate the followings: (any three)   2x3=6
    a) Area of a triangle.
    b) Area of a Rhombus.
    c) Volume of a sphere.
    d) Volume of a cone.
8. What do you mean by C.I. Engine & S.I. Engine? Write down the working principles of a four stroke Diesel Engine.   3+5=8
9. What are the common weld defects? State briefly the causes and remedies of two common weld defects.   3+5=8
10. Write short notes on the following: (any two)   2x3=6
11. How the quick return motion of a shaper is obtained and why it is necessary?   7

OR

How the length of stroke of a shaper is adjusted? Explain with sketch.

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Time : 2 ½ Hours   Full Marks: 85

Question 1 & 2 compulsory.

Section-A: General knowledge – 10 Marks.

Question – 1

i.   Under an agreement with which of the following country did Subhas Chandra Bose organize the Indian soldiers, taken as prisoners by the Axis Powers, into the Azad Hind Fauj?
        A. China   B. Germany   C. Italy   D. Japan
ii.   The Battle of Palassey was fought in
        A. 1757   B. 1782   C. 1748   D. 1764
iii.   The famous book 'Anandmath' was authored by
        A. Sarojini Naidu   C. Bankim Chandra Chottapadhya
        B. Sri Aurobindo   D. Rabindranath Tagore
iv.   Who is the author of the book 'My Experiments with Truth'?
        A. Mahatma Gandhi   C. Michael Anderson
        B.   Winston Churchill   D. Jarnes Morris
v.   In a single throw of dice, what is the probability of getting number greater than 4?
        A. ½   B. 2/3   C. ¼   D. 1/3
vi.   If x=y=2z and xyz=256, than x=?
        A. 8   B. 3   C. 5   D. none of these
vii.   What is the missing number   8, 17, 25, 33, ----
        A. 442   B. 43   C. 42   D. 41
viii.   Vijay kumar is famous for
        A. shooting   B. football   C. cricket   D. hockey
ix.   "Gita Govinda" is written by
        A. Valmiki   B. Jaya Deb   C. Tulsidas   D. None of these
x.   ……………….. is called the 'Manchester of India'
        A. Ahmedabad   B. Mumbai   C. Gujrat   D. Sreerampore

Section – B: General English   -   10 marks

Question – 2

i.   Write an application to CWM/Kharagpur with your bio-data seeking employment on compassionate ground.   6 marks
ii.   Answer any four of the following   1x4=4
        a. God helps those who help ……… (myself / yourself / themselves)
        b. Aluminium is …………… useful article. (a / an)
        c. The dog is lying ……….. the floor. (in / into / on)
        d. ……….. (The / A / An) Indian Railways has more than 66,000 Km route length of track.

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Section – C & D : Technical Subject – 65 marks
Section – C: Computer Science & Engineering.

Question – 3 Answer any 10 questions (Each question carry two marks) :-

1. The brain of any computer system is :-
   a. memory　　　　b. CPU　　　c. ALU　　　d. Control Unit　　　e. Hard Disk
2. the fifth generation computer have the different from of other generation (first, second, third & forth) in respect of :-
   a. technological advancement
   b. hard disk
   c. object oriented programme
   d. scientific code
   e. none of the above.
3. The 1's complement of $(10)_2$ is
   a. 01　　　　b. 110　　　c. 11　　　d. none of these
4. Which part of CPU interprets programme and initiate control operation.
   a. Input　　　　b. storage unit c. logic unit　　d. control unit e. none of these
5. The binary system uses power of
   a. 2　　　b. 10　　　c. 8　　　d. 16　　　e. none of these
6. A computer programme that converts assembly language to machine language;
   a. Compiler b. interpreter c. assembler d. comparator e. none of these
7. The time required for fetching and execution of one simple instruction is
   a. Delay time b. CPU cycle c. Real time　d. seek time　e. none of these
8. From what location are the 1st computer instruction available on ……….
   a. ROM BIOS　　b. Boot.ini　　c. CPU　　　d. CONFIG SYS　　e. none of these
9. The part of machine level instruction, which tells the CPU unit what is to be done is
   a. Operation code　b. Address　c. Location　d. Flip-flop　　e. none of these
10. To avoid race condition the number of processes that may be simultaneously inside their critical section
    a. 8　　　b. 1　　　c. 16　　　d. 0　　　e. none of these
11. Inter process communication
    a. Is required for all processes　　　c. Is usually done via disk drive
    b. Is never necessary　　　d. Allows processes to synchronize activity
12. Memory :-
    a. Is a device that perform a sequence of operations specified by the instruction in memory
    b. Is the device where information is stored
    c. Is a sequence of instruction
    d. None of these
13. The FIFO algorithm :-
    a. Execute first the job that last entered the queue
    b. Execute first the job that first enter the queue
    c. Execute first the job that has been in the queue the longest time.
    d. None of these
14. The principle of locality of reference justifies the use of
    a. Reliable
    b. Non reliable
    c. Virtual memory
    d. Cache memory
    e. None of these
15. RS 232 is a …………… Date transfer standard
    a. Serial　　　b. parallel　　　c. serial-parallel　　　d. none of these

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Question – 4   Answer any 10 questions (Each question carry 1 ½ marks)

1. Bridges are used for interconnecting LANs that uses …………. Protocols.
   a. Same   b. different   c. none of these
2. What is the most commonly used transmitter speed in bps build in data communication
   a. 300   b. 1200   c. 2400   d. 9600   e. none of these
3. The Internet Control Message Protocol (ICMP)
   a. Allows gateways to send error a control messages to the gateways or hosts
   b. Provides communication between the Internet protocol software over one machine and on the another.
   c. Reports error conditions to the original source, the sources must relate errors to individual application programme and take action to control the problem
   d. All the above
   e. None of the above
4. Which is of the following is used for modulation & demodulation?
   a. Modem   b. Protocols   c. Gateway   d. Multiplexers
5. The term 'Full duplex' refers to the ability of the data receiving stations to echo back a confirming massage to the sender.
   a. Can't talk at voice
   b. Can receive and send data simultaneously
   c. Can send or receive date one at a time
   d. Can do one way data transmission only
   e. None of these
6. Which of the following device is used to connect two systems, especially if the system use different protocol?
   a. Hub
   b. Bridge
   c. Gateway
   d. Repeater
   e. None of the above
7. Which of the following is a database administrator's function?
   a. Database design
   b. Backing up the database
   c. Performance monitoring
   d. User co-ordination
   e. All of the above.
8. Each of data files has a ……………. That describe the way the data is stored in the file
   a. File structure
   b. Records
   c. Fields
   d. Database
   e. None of the above
9. What is the language used by most of the DBMS for helping their users to access data?
   a. High level language
   b. Query language
   c. SQL
   d. G4L
   e. None of the above

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10. Periodically adding, changing and deleting file records is called file
    a. Updating
    b. Upgrading
    c. Restructuring
    d. Renewing
    e. None of the above
11. The data dictionary tells the DBMS
    a. What file are in the data base
    b. What attributes are possessed buy the data
    c. What these file contains
    d. All of the above
    e. None of the above
12. Control of data communication deal with
    a. The communication channel
    b. The computer
    c. The terminals
    d. All of the above
    e. None of the above
13. Critical path of PERT chart is
    a. Path which takes longest time to complete the project
    b. The shortest path
    c. Path which takes shortest time to complete the project
    d. Both (b) & (c)
    e. None of the above
14. Inventory is also referred to as
    a. Stock
    b. Warehouse capacity
    c. Materials
    d. Materials in hand
    e. None of the above

Section: D:Answer any two questions (each question carry 15 marks)

Q.5:   What are various common fundamental data types and derived data types used commonly in computer languages? What is pointer in C or C++ ? What is class in C++? What is base class and derived class in C++?

Q.6:   What are the various features in objective oriented programming? Define them?

Q.7:   Define AND gate, NOT gate and OR gate. Write down the truth table of these three gates? Write down the truth tables of NAND gate and NOR gate?

Q.8.   i)   Name the seven layers for Open System interconnect (OSI) developed by International Standard Organization (ISO)?   (7 marks)
        ii)   What is a file? What are text files and Binary files? How the files are protected? What are different types operation we can handle on files?   (8 marks)

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