

Timestamp	Name	Branch/Degree	GV Panel	Time	Questions Asked	Suggestions/Tips for Preparation
4/9/2014 11:15:32		MF Dual Degree	B. Maiti (chairman) , AK Samantray, AR Choudhary, Abhijeet Guha, K Ray		<p>draw the arrangements of 2 plates for butt welding having a V groove</p> <p>if loaded axially with load p find the stress in the welded joint</p> <p>draw otto cycle, carnot cycle in PV plane and what happens in the engine</p> <p>what is bernoulli equation write it with thermal terms included</p> <p>if a plate having a pin hole is heated and expands will the hole 25 disappear</p> <p>if a steel rod fixed at one end is heated what is the stress developed in the rod?</p> <p>Faradys law , Lenz law, Maxwell's equation</p> <p>effect of torch angle on welding</p> <p>type of welding machines in the lab</p>	<p>well prepare atleast a few topics they dont pay attentions when u know the answers</p> <p>so better show them you are trying hard to solve it and take your time for the ones you know the ones you dont know clearly mention you dont know that is what they want to hear and they will proceed to next question</p> <p>if some topic you have no idea of ,clearly mention it to them, for manufacturing junta you can say no to fluids and thermal or use your body language</p> <p>Mine was towards the end so they chilled out a bit.</p>
4/9/2014 10:29:41		ME B.Tech	SK Dash SK Pal SN Bhattacharya MC Ray S Deb	10 minutes	<p>1. What is the difference between Casting and Forging? Mention one application where both can be used. What is the difference between them for that application?</p> <p>2. What is electromagnetic forming?</p> <p>3. Draw the Mohr's Circle. Mention special cases of Mohr's Circle. Are these cases valid for all materials?</p> <p>4. Draw a rectangular fin. Write the governing equation for it. Does the equation remain same if it was a curved fin?</p>	<p>Whatever you do, they will kick your ass. But study the subjects associated with the professors in your panel well to be on the safe side. They can ask you literally anything (why do you wear shoes, why does cutting your hair not hurt, what is thunder, how do your spectacles work) and from anywhere (a thermal prof asking you to make a bond graph for given electrical circuit). So:</p> <ol style="list-style-type: none"> 1. Prepare panel subjects well 2. Prepare others if time permits (mechanics, dynamics, mechanisms, machines, automobile - basically things a mechanical engineer should know) 3. Brush up your GK
4/9/2014 10:39:19		MF Dual Degree	A.K.Nath(chairman) Kingshook S.Ghosh Moulic A.K.Das Jinu Paul	10-15 min	<p>Kingshook:What are the different co-ordinate systems of a robot ? A.K.Nath</p> <p>Experiments performed in CFW lab>>questions related to spot welding:Where is heat generated ? Why no melting takes place at electrode metal interface and only metal-metal interface ? Different types of weld strength test performed in lab>>reason?result? Horn shape in USM>>length,wavelength,frequency ?</p> <p>Jinu Paul: Forging>>hot and cold forging>>difference,surface finish,micro-structure change(also asked in spot welding) different techniques to forge,real life example of application</p>	<p>Since everyone in this panel had prepared for NTMP they did not ask me questions from it when I said I had prepared it best. They went to my 3rd and 4th subject alternative which was robotics and welding. 2nd was CIM. So if you are towards the last 3-4 students in your panel expect the panel to be fed up with NTMP. Prepare(apart from NTMP) CFW(atleast the welding part and forming part),RCCM and go through lab experiments even of 1st year relating to these subjects.</p>
4/9/2014 11:20:47		ME B.Tech	A.K.Nath (Chairman) S.ghosh Moulick Jinu Paul Kingshook Bhattacharya A.K.Das	15-20 mins	<p>1) Draw Merchant Circle dig. and explain it.</p> <p>2) Nowadays coatings are used on cutting tools for machining hard materials, name some coatings and the methods used for surface coating of these tools.</p> <p>3) For forming a groove on a thin sheet metal, which machining method would you use?</p> <p>4) What is the significance of "Ultrasonic" in USM?</p> <p>5) Why is Ga used in ion-beam Machining?</p> <p>6) In EBM does the workpiece need to be a good conductor of electricity?</p> <p>7) Newton's Law of Viscosity and its derivation. >:(</p>	<p>I would suggest to name all the subjects you are a bit comfortable with because in my case after they finished asking questions from the topics I mentioned, i said only 2 (NTM and MTM) and for MTM the panel hardly had any idea so they jumped to fluid mechanics -_- Keep calm and don't feel ashamed of saying i don't know coz even they know u don't! :P</p>

4/9/2014 11:52:04

ME BTECH

AK NATH,GHOSH
MOULIC,KINGSHOOK,JIN 30 MINS
U PAUL,ARUP DAS

topics:thermodynamics and NTM
State Postulate theorem,what is a simple compressible system
?,How many states are required to determine the state of multiphase system like steam water mixture ?,Ratio of work of turbines and pump-which one is higher and why ?,what are the types of welding ?,what is resistance spot welding ? and why doesn't the tool weld with the work piece ?,What are the types of processes in NTM ?,Bending moment diagram of a simple supported beam ? Maxwell relations ?What is ion beam machining ?

Read all the cycles and all equations in thermodynamics and have an understanding of their conditions,Read two to three subjects and have a general idea of basic things like bending moment diagram.Learn from previous GV questions.

4/9/2014 11:56:00

Mf B.Tech

R. Bhattacharya
Ramanujam
PP Bandhopadhyay
Mihir Sarangi
kajal Biswas

15 mins

Favourite subject asked - MTM
Basic questions on rake and clearance angle - definition, importance
Chip redn coefficient - why does chip thicken, shear angle defn
Casting - composition of green sand, lab work on compressibility
Different materials used for pattern

In case you have a professor, who has taken a lab for you, have a look at the expts. involved

4/9/2014 11:56:33

Mechanical/B.Tech

Prof. AKC (Chairman)
Prof. Suman Chakraborty
Prof. Partha Saha
Prof. Sanjay Gupta
Prof. Ajay Sidpara

35 minutes

What is the difference between classical fluid mechanics and microfluidics?
Velocity profile and shear stress profile for a laminar, fully developed flow in a circular pipe.
Otto cycle and diesel cycle PV and TS diagram , major differences between the two.
Techniques of fabricating a microchannel and steps involved in one of such techniques.
Limitations of no slip boundary condition; slipping flow and Knudsen number
Types of failure theories; proof of Von Mises failure criteria;
stress diagram of 2D rectangular element; Stress tensor matrix;
Application of microfluidics in medical diagnosis
They started out with design questions..
1) Represent pure shear on Mohr's circle and convert it into uniaxial stress
2) Write Soderberg's equation and draw graph as well
3) What is Endurance limit and draw Reversed stress vs No of cycle curve
4) Difference between trusses and frames and some follow up questions on two force members

Focus on your area of interest if you are going for MS/PhD. Do proper homework of the company in which you have got job. Leave the courses in which you are not so strong. In my case, I said that manufacturing and design are not my cup of tea. So, they asked questions entirely on thermal/microfluidics.

4/9/2014 12:37:05

Mechanical

B. Maiti, A Guha, K. Ray, A Roy Choudary, A K Samantaray

25 minutes!

Manufacturing
1) Name three gear cutting process and what is gear milling
2) Brief the steps used in gear design
Thermo and Fluids
1) What is free energy and many follow up questions on chemical potential, Gibbs Duhem equation!
2) Why Carnot cycle is not feasible from Engineering perspective(Ans: It takes infinite time and u need infinitely large flywheel) No other answer seems to convince them!

Impressions matter a lot! Shoes a must for B. Maiti panel and it doesn't hurt to wear formals! I would suggest u to prepare for subjects taught by panel, they mayn't give choice for subjects all the time.

4/9/2014 12:38:36

Mechanical

B. Maiti, A Guha, K. Ray, A
Roy Choudary, A K
Samantaray

25 minutes!

They started out with design questions..

- 1) Represent pure shear on Mohr's circle and convert it into uniaxial stress
- 2) Write Soderberg's equation and draw its graph as well
- 3) What is Endurance limit and draw Reversed stress vs No of cycle curve
- 4) Difference between trusses and frames and some follow up questions on two force members

Manufacturing

- 1) Name three gear cutting process and what is gear milling?
- 2) Brief the steps used in gear designing

Thermo and Fluids

- 1) What is free energy and many follow up questions on chemical potential, Gibbs Duhem equation!
- 2) Why Carnot cycle is not feasible from Engineering perspective(Ans: It takes infinite time and u need infinitely large flywheel) No other answer seems to convince them!
D.K.P : Define internal energy, entropy and enthalpy. What is the typical value of the pressure of the condenser in a refrigeration cycle? How do you calculate entropy, internal energy? cp and cv, which is greater? value of their ratio. is the ratio constant or can be greater and lesser?

M.K.D : Write the equation for the pressure drop in a pipe flow.
Name of the diagram through which we calculate the friction factor.

Formula for Reynolds number. Value of Re before which flow is laminar and after which flow is turbulent.

C.S.K : A job is mounted in a lathe with the other end supported by a center. If I give a large depth of cut with a tool, what would be the final shape of the job? If the diameter is large and length is small, what would be the final shape? If the diameter is small and length is large, what would be the final shape? If I have to drill 4 holes in a flat plate, what process should I use? If the hole is square, what process should be used?

S.K Panda and G.Chak were not present at my time.

1. Define open & closed system. 1st law of thermodynamics for the systems
2. Profiles of Hydrodynamic & Thermodynamic BL for a certain Prandtl no. & certain conditions
3. Natural Convection - BL formation, describe variation of density
4. Draw Refrigeration cycle in P-h diagram
5. Difference between coolant & refrigerant
6. Uses of coolants
7. Cams, Draw Displacement profile curve of cams
8. Why do we wear shoes?? (LEVEL: EXTREME TROLL)

Impressions matter a lot! Shoes a must for B. Maiti panel and it doesn't hurt to wear formals! I would suggest u to prepare for subjects taught by panel, they mayn't give choice for subjects all the time.

4/9/2014 13:07:54

Mech./EP Dual

C.S.Kumar, S.K. Panda,
G.Chak, M.K.Das,
D.K.Pratihar(Chairman)

~20 min

C.S.K : A job is mounted in a lathe with the other end supported by a center. If I give a large depth of cut with a tool, what would be the final shape of the job? If the diameter is large and length is small, what would be the final shape? If the diameter is small and length is large, what would be the final shape? If I have to drill 4 holes in a flat plate, what process should I use? If the hole is square, what process should be used?

S.K Panda and G.Chak were not present at my time.

For this panel, strictly prepare according to the subjects of the panel and a little bit extra too.

4/9/2014 13:43:29

B.Tech (Mech)

SK Dash
SN Bhattacharyya
MC Ray
S Deb
SK Pal

15 min

1. Define open & closed system. 1st law of thermodynamics for the systems
2. Profiles of Hydrodynamic & Thermodynamic BL for a certain Prandtl no. & certain conditions
3. Natural Convection - BL formation, describe variation of density
4. Draw Refrigeration cycle in P-h diagram
5. Difference between coolant & refrigerant
6. Uses of coolants
7. Cams, Draw Displacement profile curve of cams
8. Why do we wear shoes?? (LEVEL: EXTREME TROLL)

Prepare basics. Put in an hour for a week.

Fav Subjects- Dynamics and Thermodynamics
Ramu- "What are the two statements of 2nd law and whats the difference b/w the two?"

- RB - 1)Euler's equation of motion
2)A basic question on degrees of freedom
3)State the Newton's laws

K Biswas- pointing to a disposable plate on table, "How is this manufactured?"

- PPB - 1)Name any 5 machine tools.
2) Name any 5 cutting tools.

Select any 3-4 subjects and prepare well in those areas. Just revise other ones slightly because most of the questions asked will be based on what ur choices are.

4/9/2014 13:47:02

ME- B.Tech

Ranjan Bhattacharya,
Ramanujam, M Sarangi,
PPB, K Biswas

20 min

- RB - 1)Euler's equation of motion
2)A basic question on degrees of freedom
3)State the Newton's laws

K Biswas- pointing to a disposable plate on table, "How is this manufactured?"

- PPB - 1)Name any 5 machine tools.
2) Name any 5 cutting tools.

4/9/2014 14:28:33

Mechanical/B. Tech
Kajal Biswas, Ramanujam,
Mihir Sarangi, R
Bhattacharya, PPB (PPB
was not present)

20 min

When they got to know I had worked in the Formula SAE project, they asked me about that for more than half the duration. What did you work in? Why did you choose laser sintering for intake design? What are the failure modes of a laser sintered product? What difference did your exhaust make from the previous one (did the car go faster?)
Then they moved on to normal ones: What is sigma ij (State of stress tensor)? Draw the bending moment, shear force and deflection diagrams for a tip-loaded cantilever beam.

SK Dash :

1) Write the equation for flow in a pipe with two ends and a pump in between.

2) Why does a cycle wheel have spokes?

A : Sir, ... umm.. to hold the wheel together and .. umm.. balance it?

SKD : Then what will happen if we use a solid disk instead of spokes?

A : Sir, it will become very heavy.

SKD : Good! (That was the ans he was wanted :P)

SK Pal : (No questions asked from forming)

1) Why is a dielectric used in EDM?

2) If kerosene or other hydrocarbons are used, why doesn't it catch fire?

3) What is the difference between orthogonal cutting and others?

4) Explain differential indexing.

If you can steer your viva towards a project you did in the dept, great for you! Otherwise they can ask anything (more than just basics) from any topic, so study the subjects of your liking/your panel's specialization in detail. I feel it's better than studying a little bit of everything.

Prepare Thermo-fluids well.. simple questions will be asked by SK Dash. Being the chairman of the panel, he will have a lot of influence.

Prepare a few other subjects(ones not taught by the panelists) slightly.

4/9/2014 14:49:24

MF Dual Degree
SK Dash(Chairman)
SK Pal
S Deb
MC Ray
SN Bhattacharyya

10 mins

S Deb :

1) Why do we need to make a Manufacturing system flexible?

2) Give me an example of a machine tool which is flexible.

3) (interfering me in the middle of another answer) How is differential indexing done?

S Deb is obsessed with terms and technicalities.. so you prepare those well. He may interfere as you explain something, so be mentally prepared for that.

MF students do not face questions from topics like CFD(from SN Bhattacharya)

MC Ray didn't ask anything.

SN Bhattacharya being a CFD prof and being compelled to interview MF students, was sleeping :P

P1: Wht subjects have u read for today's viva?

me: IC Engines, MTM

P1, P2 & P3: <laughing>

P1: U ppl r giving us a null space to ask questions..

Questions:

1) How does an engine work?

2) what is knocking?

3) Why there is more vibration and sound for diesel engines compared with petrol engines?

4) Draw P-V diagram for 4-stroke Petrol engine.

5) Explain the PV Diagram.

6) what is the difference between adiabatic and isothermal processes graphically?

7) why adiabatic curve is steeper than isothermal curve?

8) what is gamma in adiabatic gas equation?

9) difference between Cp & Cv. Heat equation for Cp.

10) Relation between enthalpy and internal energy.

11) Why I-beams are used instead circular beams in construction?

12) When a paper is held at the edge with the two side edges curved, the paper remains stiff. But when it is held straight, the paper bends and will not be stiff. Why?

<luckily a guy came in to provide snacks at this point and they decided to leave me.. Hats-off for that guy..>

Dress neatly.

Try not to tell the Fav subjects in their area of expertise.

Be thorough with the favorite subjects u tell.

Be confident with your answer.

4/9/2014 14:59:59

B.Tech
P1: A Das Gupta
P2: Kalekar
P3: Racherla

The rest of the panel was not there. It was S. Paul's panel.

20 min

4/9/2014 15:07:39

Manufacturing
Science and Engg

Prof A Dasgupta, V
Racherla, Kalekar, S Paul, 30 min
S Roy (absent)

How can induction heating of a non-ferrous material induce residual stresses, Normal traction, Principal Stress, Mohr's circle significance and related problem, Cutting temperature dependence on speed, feed, depth of cut with reasoning, Chip reduction coefficient and force dependence on it.

There were people who were asked about their hobbies, there were people who were asked about why we wear shoes and then there was me. So, my suggestion is cover your strengths. Do your bit and then pray to God for a peace panel.
Cheers!

4/9/2014 15:20:17

ME, B. Tech.

Prof. D K Pratihar
(Chairman)
Prof. G. Chakraborty
Prof. S. K. Panda
Prof. M. K. Das
Prof. C. S. Kumar

~ 20 mins

MKD - Differences between small and large IC engines; Which has higher RPM and why?; Standard common specifications and practical applications of both; Turbocharging and supercharging; Where is it used and why is it required?

SKP - Subcritical HAZ in welding; Friction stir welding; Centrifugal casting and G factor; Metal raining in centrifugal casting; Hydrostatic and Deviatoric stresses

CSK - Bond graph problem (mechanical system); Associated equations and degrees of freedom

DKP - Rake angle and properties; Cutting tool views and specifications; Cutting tool materials

GC - Wasn't present during my viva

where did you get placed? (S Roy)
which subjects did you study for GV?(S Roy)

How is a workpiece prepared? Name the process. What are the different types of that process? Compare the different types(AKC)
Draw a cutting tool with negative rake and positive rake. Why is a brittle tool generally made with negative rake? explain with diagram.(AKC)

Is rake surface questions danger zone to you??(AKC)
what is your CGPA? what was your grade in workshop process lab in 1st year? workshop processes lab in 2nd year? what was your grade in MTM in 3rd year?(AKC)

Parts of the lathe. what are the types of chuck? what is the mechanism of a 3 jaw chuck?(AKC)

Is the spindle of a lathe hollow or solid? why ?(AKC)
Difference between Machine and Machine tool?(AKC)

Definition of a machine given in the movie 3-Idiots? (S Roy :D)
How does current pass in electrochemical discharge machining?

Draw the setup and explain.(P saha)

How does electro-chemical grinding work? describe the tool. Is there chances of short-circuiting?(P saha)

Do you prefer questions from MOS or DOME ?(S Gupta)

Design a shaft. Explain the steps and precautions(S Gupta)

Name friction devices. (S Gupta)

Differentiate between frictionless and friction pulley.(S Gupta)

Be prepared with 1-2 topics thoroughly depending on your panel. But make sure that you go through all other topics briefly as questions were asked from multiple disciplines for me. Give at least 2 days time for viva preparation. Most importantly, be confident and in case you don't recall something, mention it to the panel.

4/9/2014 15:58:49

MF B.Tech

AK
Chattopadhyay(chairman)
S Roy
Sanjay Gupta
P saha
Sidpara
Suman Chakravarty(he was absent during my Viva)

35 mins

Brush up the subjects of the pros in your panel. Formula prep is not needed; Just the basic concepts. Try to be aware of the general funda (about common materials used, basic functions of different parts of machines, their use) of every thing in and around Mech : the to-so-bookish-knowledge of the subjects

The panel were friendly and also gave hints while answering. they became sarcastic sometimes but overall it was not very intimidating. All the Best ! :)

4/9/2014 16:22:44

B.Tech MF

AKC
S Roy
S Gupta
P Saha
A Sidpara
(S Chak out of town)

35 min

Panelists are friendly. Even if you do not know the answer, hints are given and the answer is drawn out of you. If you are comfortable with your BTP, try to bring it up. Study a couple of subjects. Any subjects(not necessarily the Professors' subjects). Study them well. That should be sufficient.

They ask you what are the subjects you are comfortable with.

A few questions about future plans, placements.

Questions from MTM, NTMP, DOME.

A few questions about my BTP.

4/9/2014 23:26:16	MF/B.Tech	S.Paul(chair) V.Racherla* S.Roy* A.Dasgupta C.Kalekar *-absent	30-35 mins	S.Paul- MTM-> What is the mechanism of chip removal? Which type of stress is responsible for it. 2D Mohr circle for metal cutting? Welding-> What is the basic requirement for two plates to be butt-welded? How do you control the heat flow in the direction perpendicular to the welding line? C.Kalekar- Thermod-> What is entropy? How is it quantitatively defined? How can you relate the relation of randomness with entropy to the above definition? A.Dasgupta- Thermod-> What is availability? What is first law of thermodynamics? Its expression.	Prepare two to three topics thoroughly and be confident about whatever you say. Don't try to outsmart them. They will give you hints in case they have asked you a tricky question. If you don't know the answer to any question, just say so.
4/10/2014 19:41:58	MF	S paul (chairman) A Dasgupta Kalekar V Rachela(absent) S Roy(absent)	20 mins	Questions on EDM, ECM. (not in details) Casting process Conduction Convection	If you got a sense of humor it's better. Try to answer better than wikipedia.
4/10/2014 23:21:21	MF-Dual Degree	DKP, SKPanda, MKD, CSK, GChakraborty(absent)	10 min	dkp- what is variable rakeangle tool?.....ans= twist drill skp- what are two criterion for yielding?.....ans= tresca n von-mises csk- how to find closed loop gain?.....ans= syscon notes...nyquist plot mkd- write open system flow eqn?....and write power equation for turbines?.....ans= refer to basics of thermodynamics.	On a serious note, prepare 3 4 subjects properly, preferably covering all three areas i.e thermal, design and Manufacturing. You will be asked regarding what did u prepare. And ya, it's not that haunting study all the subjects for this panel.....even non-relevant ones.....you shud know little bit abt every subject u studied....questions will be random but u can study cim, robotics, casting thoroughly.